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Better Health, Bigger Dividends

MANY a rubber factory is designed, equipped, and operated to conserve the health of its operatives; every known precaution is taken to guard them against bodily injury; and for such as are physically harmed or afflicted with occupational disease, nursing and medical treatment are given without stint. Practically nothing is left undone in assisting the worker to regain primarily his health and secondarily his factory efficiency. Yet humane and valuable as is this service, it still leaves something to be desired, and that is the adoption of measures that will more effectively lessen industrial illness generally; more prevention as well as cure.

Sick workers, with mild or acute common illness, may mean a very sick industry. Research workers have shown that the days lost by ailing workers are from five to ten times as many as those lost through accidents, even in industries classed as hazardous. Many ailing operatives may easily spoil the morale of a good corps of workers, with resultant discontent, listlessness, and low and inferior production. Yet for even this distressing condition a corrective is now provided. Life insurance companies that issue workers' group policies, realizing that they and employers have a common interest in mitigating disease and in prolonging life, now freely offer a new service that even progressive rubber manufacturers may find very helpful. It is active cooperation through special departments devoted to industrial hygiene. The proposition at least merits thorough investigation.

Our Cotton Triumphs

THE occasional pessimist mourns the fact that the United States Department of Agriculture has not matched the British Imperial Department and given to our manufacturers all the rubber needed in our own dominions. Of course, it should be evident that our department never had the money to do such work and could not get it, and this in spite of frequent appeals dating back to the time of Secretary Wilson. However, with the pitiful doles that came occasionally from a reluctant Congress much has been done in rubber. But would it not be a just and a graceful thing for rubber manufacturers to ponder what this overworked department of ours has done in cotton?

For a great part of the rubber industry, cotton is almost as essential as rubber itself. It is the skeleton of every pneumatic tire, of nearly all belting, hose, footwear, waterproofed apparel, and numerous other articles properly classed as rubber goods. Some idea of the important rôle played by the staple may be had when it is stated that in tires alone its percentage ranges as high as 25, and that to make 50,000,000 tires (now the approximate requirement for a year) fully 500,000 bales of cotton must be provided. Probably as much more is consumed in various other divisions of the rubber industry, raising the total to a round million bales, or about one-tenth of an average year's crop. This indispensable concomitant of rubber is almost wholly grown in the United States—a vast crop—largely a creation of the Department of Agriculture.

In no other agricultural enterprise has this federal bureau had to contend with so many adverse factors as in cotton growing and marketing, influences so unfavorable as would thoroughly discourage officials less far-sighted, public-spirited, and indefatigable.

It has stuck resolutely by its conviction that the United

States can, as it should, supply the major part of its cotton needs from its own soil, and advantageously. It has brought to the planters the experience of the world, has proved on its many experimental farms that cotton growing is not the hit-or-miss affair commonly supposed, and that science beats empiricism every time. Through a vast amount of research work it has shown the benefit of and how to get pure seed, how to cultivate sturdy varieties, to water plants, to combat pests and plant maladies, what sorts are best suited to certain localities, how to offset weather changes, to gather crops efficiently; and it has pointed out the best plans for storage and the most effective methods of marketing. It has encouraged in the Southwest a marvelous development in cotton growing that may virtually redeem the industry; and has been particularly helpful in establishing for American cotton an accurate commercial classification as to grades, colors, and staples, to the great relief of buyers here and abroad who hitherto have had to depend for such aid and guidance on the international market of Liverpool.

Rubber Aids Study of Anatomy

THE chap on the zodiac page of the almanac may soon have an animated counterpart in a papier maché manikin with internal organs of rubber in full operation if, as is probable, the example set by the United States Department of Agriculture be followed. That federal body recently set up a life-size model of a cow with one side removed to reveal the viscera. A striking feature is a rubber heart operated with an air pump, driving with realistic pulsations a red fluid through thin rubber veins and arteries and thus showing the circulation of the blood and its important rôle in milk production. That major functions of the human body can be similarly exhibited with rubber anatomical apparatus is obvious; and not only the circulation of the blood can be thus illustrated, but also swallowing, the process of digestion, and the peristaltic movement of the alimentary tract below the stomach. Such a contrivance should be of inestimable advantage for primary instruction in medical and other schools, affording a lesson in anatomy and physiology far more impressive than is given by most charts and textbooks.

It may be that only the larger schools could afford elaborate models of this kind, but less fortunate educational establishments need not wholly forego the advantages of such up-to-date instruction. They could utilize very effectively and at small cost motion pictures of such a model with its activated rubber "innards" until such time as the parts can be cheapened by quantity production. Indeed, the time may not be far off when, with this new use of rubber, we may read quotations for original equipment or replacement of standardized rubber hearts, gullets, stomachs, kidneys, bladders, duct glands, entrails, windpipes, and livers and lights.

HE THAT BY USURY AND UNJUST GAIN INCREASETH his substance, he shall gather it for him that will pity the poor.—Proverbs, XXVIII: 8, 20.

Cooperative Propaganda

THE influence of propaganda at this present time is undoubtedly very great. Indeed a majority of those who read accept wholly or in part the ideas presented, particularly if they are well expressed. It saves individual thinking and supplies ideas that although second-hand serve their purpose for the many who think by proxy. Such being the case it is not only the privilege but the duty of those who would be helpful to their fellows to propagand constantly, but always along lines that are genuinely honest and helpful. Modern and very often strikingly successful efforts are found in what may be called Commercial Propaganda. That the rubber trade is awakening to its importance is most gratifying. The beginning was made some time ago by the British Rubber Planters' Association. Their prizes for the suggestion of new uses for rubber, their widely distributed booklets, their articles and advertisements have already done much and will have a cumulative effect of magnitude. Their success leads them to plan for a greater effort for the coming year. In their tentative budget for 1925 is an item contemplating the expenditure of some $350,000, about one-third of which will be expended in the United States. Carrying the cooperative plan further than ever before, a portion of this fund will be expended in accordance with the friendly advice of American manufacturers. With the great planters' association cooperating with the rubber manufacturers the interests of both planters and manufacturers will be amply guarded, and the whole rubber trade benefited.

Goodyear Zeppelin Factory

ACCORDING to P. W. Litchfield, vice-president and general manager of the Goodyear Tire & Rubber Co., the great American Zeppelin plant is likely to be located at Los Angeles, California. Addressing the Chamber of Commerce in Los Angeles, Mr. Litchfield predicted airships from the new plant three times as large as the German-made ZR-3 that lately crossed the Atlantic. Chiefly as freight carriers from the Pacific Coast to the great markets of the Orient was where he saw their first great development. With helium instead of hydrogen for lift, and with the present perfection of construction, safety, speed, and economical operation have been secured. The Goodyear Tire & Rubber Co. controls the American Zeppelin Co., the German company retaining a third of its stock.

THE LATEST INDICTMENT OF THE CAPITALISTS COMES in the form of a denunciation of the pneumatic tire. It made the automobile possible. Therefore all motor accidents are due to its existence. Moreover, it has made millionaires of many and industrial slaves of thousands. Furthermore, it was planned, plotted and introduced by a few far-sighted, grasping, and energetic enemies of the proletariat. There will be no pneumatics in the socialistic future—except for their prophets.

The Largest American Installation of Rubber Paving

Requirements of Michigan Avenue Bridge Contract—Wright Rubber Paving Meets Rigid Specifications—Details of the Paving—Results of Experiments Elsewhere

THE largest area of rubber street paving thus far laid in America was completed late in October on the famous Michigan Avenue Bridge, Chicago, Illinois. Although two other notable bridge installations have been made in this country during the past year, nowhere else has such an extensive trial of this new paving material been made, nor has such an excellent opportunity been afforded to demonstrate its many desirable qualities and advantages. Numerous rigid requirements had to be met in the floor covering of this bridge, because of the character of its construction and the uses to which it was put, that it seemed nothing but rubber could meet. That these requirements have been fully met by this recent installation appears certain, and that time will justify the choice is firmly believed by those who sponsored it.

The Michigan Avenue Bridge

Handsomest, most imposing and important of the several bridges spanning the Chicago River is that which continues Michigan Avenue Boulevard from the business heart of the city northward. One of the greatest difficulties that the city of Chicago has experienced with this bridge has been the large number of cars which have been wrecked on rainy days. By actual count this bridge clears 58,000 to 60,000 automobiles every twenty-four hours. Traffic is further complicated by the fact that buses turn about at one end of the bridge. When it is necessary to stop other traffic on the bridge to permit buses to turn it becomes almost impossible to control the cars, which skid badly on rainy days, running into the cars ahead and often causing much damage.

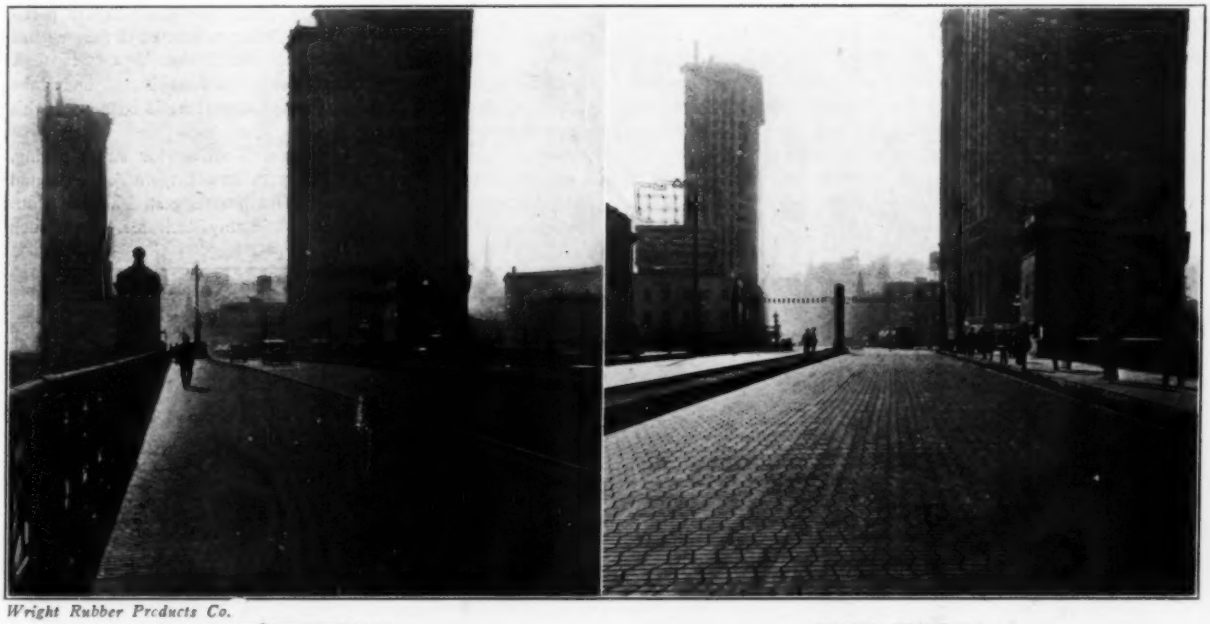
Further trouble was also caused by the fact that this is a double-deck bridge with one driveway above another. When it rained the water, oil and dirt on the upper driveway very naturally flowed down through the wood planking formerly used onto the trucks and cars on the lower level.

What Rubber Paving Has Accomplished

Rubber paving has been laid across one entire span of the bridge, both of the sidewalk and of the roadway. This means a strip of rubber sidewalk 150 feet long and 12 feet wide, or 1,800 square feet, and also a strip of rubber roadway 150 feet long and 30 feet wide, or 4,500 square feet, making a total of 6,300 square feet of rubber surface.

The new paving has eliminated both of the serious troubles encountered in the use of this bridge. Being of corrugated rubber, the paving bricks prevent skidding. Then the use of rubber paving enabled a waterproof membrane to be put between the lower 6-inch flooring and the upper planking that absolutely eliminates all leakage from the upper down to the lower roadway.

Added to these desired characteristics will be the wonderful wearing qualities of rubber paving, which have been demonstrated in England, and it is hoped that years of test on bridge work in this country will show that it is not subject to the expansion and contraction which cause so much trouble with wooden blocks.



Wright Rubber Products Co.

RUBBER SIDEWALKS RUBBER ROADWAYS

Six Thousand Three Hundred Square Feet of Rubber Bricks Were Laid on Michigan Avenue Bridge, Chicago, Ill., October 27, 1924

Details of the Paving

The rubber paving of the Michigan Avenue Bridge was manufactured and laid by the Wright Rubber Products Co., Racine, Wisconsin. This company has done virtually all of the practical pioneering in this line of rubber manufacture that has been attempted in this country, including the rubber surfacing of parts of the Northern Avenue Bridge, Boston, Massachusetts, and the Eads Bridge across the Mississippi River at St. Louis, Missouri.

The rubber paving bricks employed in Chicago somewhat resemble those laid in Boston and St. Louis, and are of typical Wright interlocking design. As shown by the accompanying photographs, the bricks are specially corrugated on the roadway, while the sidewalk bricks are also corrugated, but only crosswise. All of the bricks measure 6 by 12 inches and on the sidewalk are ½ inch thick. Those on the roadway are 1 inch thick. The paving is laid on the wood planking of the bridge in a special cement, each brick being additionally secured to the planking with drive screws. The work of laying was done in two different periods a week apart, starting at 8 o'clock Saturday night and working through in relays until Monday morning.

Experimental Results to Date

In the week following the completion of this installation of rubber paving over 175,000 automobiles crossed it, yet the name marks impressed on each brick were none the worse for this heavy traffic. It is believed that they will continue to be as plainly visible on that bridge as these markings still are on the rubber crossing over the tracks of the Chicago, Milwaukee & St. Paul Railroad in Racine, Wisconsin, laid a year and three months ago.

Thus far the rubber paving of the Eads Bridge, St. Louis, Missouri, laid in July, is proving fully as satisfactory as that on the Northern Avenue Bridge, Boston, Massachusetts. Heavy horse-drawn and motor-driven trucks have in six months' constant use left the rubber covering of the Boston bridge looking as serviceable as when newly laid. Even a railway freight car backed off the tracks across it failed to do any appreciable damage. All the experience in America to date tends to substantiate the claims made for rubber paving for bridge work, especially that of absorbing noise and vibration. That its further development and adaptation to general street use will follow as a matter of course is to be expected.

Second Rubber Paving Experiment in Boston[1]

Pioneer Street Paving Test—Rubber Blocks Minimize Traffic Noise in Hospital Street—Special Rib Construction Prevents Blocks Crawling

EARLY last summer Boston, Massachusetts, enjoyed the distinction of being the first American city to experiment with rubber bridge paving, when part of the planking of the draw section of the Northern avenue bridge was covered with interlocking rubber blocks made and laid by the Wright Rubber Products Co., Racine, Wisconsin. Indeed, except for a rubber block railroad crossing laid by the same company in its home city, the Boston experiment was the first rubber paving given a trial anywhere in the streets of the United States. Following this, as recounted in THE INDIA RUBBER WORLD, other installations of Wright bridge paving have been made, in St. Louis, Missouri; Chicago, Illinois; and a rubber sidewalk in Akron, Ohio, laid by the Goodyear Tire & Rubber Co.

In its second rubber paving experiment Boston enjoys the distinction of being the first American city to make a trial of rubber street paving blocks. Special interest attaches to it because the problems of street paving differ greatly from those of bridge paving and also because the blocks are the invention of local men and the product of a local rubber concern. It has been felt by the present city administration that paving engineers and rubber manufacturers in this vicinity should be given an opportunity to participate in the trials of rubber paving being conducted if they wished to do so at their own expense, and the Boston Woven Hose & Rubber Co. has had the initiative and public spirit to undertake in this locality an experiment in a product that is so new in this country.

Among the foremost qualifications of rubber for street paving, apart from its remarkable durability, is its ability to deaden sound and so to minimize traffic noises. This has suggested its use about hospitals, where the utmost quiet is highly desirable. It is such a trial installation which has recently been made in Boston.

Rubber Street Paving Blocks Laid on Harrison Avenue, Boston, Mass., Fronting City Hospital. Men Officiating. Left to Right—Rufus F. Herrick, Inventor of Block; Wm. T. Gould, Boston Woven Hose & Rubber Co.; Joseph J. Comfrey, District Foreman.

On November 14 a strip of rubber street paving 30 feet long by 15 feet wide was laid on Harrison avenue at the entrance to the Boston City Hospital, where it will be severely tested by the heavy traffic over this street. The city has been resurfacing Harrison avenue past the hospital grounds and a section was set aside for the rubber blocks.

Each block is 6 by 12 inches, 1½ inches thick, has a smooth upper surface and is of a consistency that permits bending slightly. It is simple in construction and was easily handled by the men of Division 8

[1] Data and illustrations from Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.

of the Public Works Department experienced in laying granite, wood and other regular types of paving under the supervision of Joseph J. Comfrey, district foreman. It is said that the blocks of this type may be laid three times as fast as granite pavement, the result being a durable surface that is noiseless and without vibration. Another claim is that in wet weather the danger of automobile skidding is lessened, as the action of rubber against rubber has the effect of a brake.

Unlike rubber bridge paving blocks, which can be securely attached to wood planking with screw nails through interlocking wings, rubber street paving blocks must be laid on and secured to a crushed stone and concrete base. The blocks must therefore be applicable to the common methods of laying other types of paving blocks.

The rubber blocks laid in Boston have four parallel ribs or lugs, broken midway of their length and projecting one-half inch from the under surface. They are laid in a mastic cement spread over the concrete base, the edge of each row of blocks being lightly coated with asphalt cement and when tapped into place and rolled down smooth the ribs are forced into and become firmly set in the mastic cement. This forms an anchorage grip to the roadbed which it is believed will overcome the tendency toward "crawling" and other movements of displacement which have made this kind of paving impractical heretofore. For bridge work these blocks might be laid on an asphalt cushion.

These new rubber paving blocks are the invention of Rufus F. Herrick, a consulting engineer of Boston, assisted in the development work by William T. Gould, a paving engineer. They were manufactured by the Boston Woven Hose & Rubber Co. and donated to the city.

Much interest was manifested in the laying of this rubber paving, which was done before a large gathering of public officials, physicians, contractors and engineers. Besides the inventors, those present included Commissioner Joseph Rourke, of the Public Works Department; members of the Boston City Council; Dr. Dowling, superintendent of the City Hospital; Dr. James Manary, head of the Out Patient Department, and many others.

This installation of rubber paving will be watched with critical interest and later an investigation will be made to ascertain how the blocks have fared as a result of the heavy traffic over them. Commissioner Rourke states that the experiment on the Northern avenue bridge has shown that rubber block paving is the most ideal for bridges, and he is confident that if the crawling and displacement obstacles in ordinary street use are found to have been overcome in this latest installation, these rubber blocks will be most efficient on all roadways.

Balloon Tire Progress to Date

What the Balloon Tire Is—Why and How It Was Developed and What It Has Accomplished—Although Still in a State of Evolution It Has Made Good—Most Obstacles in the Way of General Adoption Overcome—Two Outstanding Disadvantages

THERE is no denying the oft-repeated statement that the pneumatic tire has made possible the swift, quiet, comfortable and generally efficient motor car of today. Without it cars could not make the speed they do and have reasonable length of life, nor could they be better than noisy, uncomfortable nuisances.

Springs, it is true, have also played a great part in the reduction and absorption of vibration in motor cars caused by irregular road surfaces. Both springs and tires are essential, and one is practically useless without the other. A wheel with a yielding periphery, as embodied in the pneumatic tire, is essential for speed, safety and comfort; but without the proper balance between the sprung and unsprung portions of the vehicle, the tire would soon be pounded to pieces. Springs, however, were common to most kinds of vehicles long before the coming of the automobile, and so required merely adaptation to a further application of them. On the other hand, the pneumatic tire, both in its cycle and automobile types, has been a special development for a particular purpose.

Every step in the evolution of the rubber tire has brought new and important developments in automobile design and construction, very often due in large measure to the inventive initiative of tire engineers working in conjunction with automotive engineers. And so also it has been and will be with the balloon tire, the latest big advance in tire design. The very difficulties which have stood in the way of its wider and quicker adoption are now opening the way for some radical automotive engineering developments in the near future.

The Balloon Tire Has Made Good

A year's use of the balloon tire by the public has shown that the problems standing in the way of its general adoption are more of motor vehicle design than of tire construction. In other words, the balloon tire has made good. The truth of this statement is sufficiently indicated by the large number of motor car manufacturers who have adopted it as regular original equipment on their 1925 models. Built with the primary object to provide greater riding comfort, the balloon tire has unquestionably demonstrated its ability to do so. Its design predicated on the common practice of driving high-pressure tires too soft, the trend toward lighter cars, and the belief of manufacturers that they might do better to produce a low-pressure tire that would withstand the severe wear and tear of the road, the balloon tire has proved itself to be practically as free from tire trouble on the road and capable of as great mileage records as high pressure tires.

What the Balloon Tire Is and Why

The balloon tire is nothing more nor less than a special type of cord tire having light weight and large cross-sectional area, but otherwise made in exactly the same way as the ordinary cord tire. Having found that a yielding wheel periphery furnished the most satisfactory means of absorbing road shocks, automobile designers have been gradually specifying larger cross-sectional tire sizes in order to improve riding comfort. A point was finally reached where the wheel and rim equipment began to add an undue weight to the unsprung portions of the car. Then there was the added cost of rim and flap equipment, together with the complexity of fittings and maintenance. The natural trend toward building lighter and more economical cars made it necessary to provide lighter tires, yet of sufficient size to insure proper cushioning against road shocks, and the balloon tire was evolved to fill this need.

Thus the balloon tire is a light weight cord tire of large air volume. Instead of the usual volume of air at high pressure, there is a greater volume at lower pressure. With lower air pressure a lighter carcass will withstand the strain, consequently fewer plies of cord are required. This results in a more flexible carcass.

which in turn affords a much greater yielding periphery of the wheel and in consequence absorbs the vibration and shocks to a greater degree than does the stiffer-walled high-pressure tire.

What the Balloon Tire Has Accomplished

While far from being 100 per cent perfect, nevertheless the balloon tire is proving very popular and is here to stay on its merits, although at present it may still be said to be in a state of evolution. The high-pressure tire today is far from being what it was when first introduced, and a similar degree of improvement may reasonably be expected of the balloon tire as the natural result of further experience with it. What has been accomplished to date was succinctly stated in a paper presented by L. J. D. Healy, technical supervisor of the Fisk Rubber Co., in October before the Milwaukee Section of the Society of Automotive Engineers.

Stating that the six principal functions of the automobile tire are, in the order named, comfort, safety, reliability, durability, efficiency and ease of replacement, Mr. Healy told how these functions had been affected by balloon tire construction.

Comfort, he said, had been greatly increased. This is due to the fact that the low air pressure allows greater displacements as the tire passes over road irregularities, thus absorbing the bumps instead of bounding over them. Consequently the vibration or shock is not transmitted to the automobile body proper. This saves wear and tear on the car as well as provides greater riding comfort.

The factor of safety, which must be provided by designing a tread which will give a positive grip on all ordinary conditions of road surfaces and at all speeds, has been much increased by the greater traction of the balloon tire.

As regards reliability and continued service, which must be provided by correct designing and the proper compounding of rubber, the balloon tire has proved almost as reliable as the high-pressure tire. Fleets of test cars using balloon tires have demonstrated that there is practically no greater puncture, cut nor blow-out hazard than with high-pressure tires.

In respect to durability or long mileage without failure, which is largely a matter of proper design and strength for given loads, the balloon tire compares very favorably with the regular high-pressure tire. There is slightly greater tread wear, due to the greater frictional movement encountered over road obstructions and to the greater deflection of the tire, but it is believed that this can be overcome by proper design and distribution of the tread stock.

On the front wheels the wear seems to be greatest on the outside edge of the tread, while on the rear wheels it appears to be greatest on the inside edge of the tread. The former condition is attributable to the increased pitch and toe-in of the wheels, while the latter is due to the crown of the road. While the wear on the rear wheels is greater than on the front wheels, nevertheless the off-center wear is more pronounced on the front than the rear.

As to efficiency or minimum loss of driving power, which is obtained by the proper design and assembly of the various component parts of the tire, that of the balloon tire is about the same as that of the high-pressure cord when used with a somewhat reduced air pressure, a practice that is almost universal on passenger cars driven by their owners. The rolling resistance of the balloon tire is slightly greater than that of a high-pressure tire inflated to the correct pressure.

So far as ease of replacement is concerned, which is largely a matter of bead and rim design, there is no difference between the two types of tires. Straight-side beads and rims have become recognized as superior in many respects to the clincher type and are common to both balloon and high-pressure tires.

Obstacles in the Way of General Adoption

Numerous obstacles to the use of balloon tires were encountered, it is true. Most of them, however, had to do with the design of the cars on which they were to be used rather than with the tires themselves, and have now been overcome. This at first, of course, made it difficult to equip existing cars with balloon tires, and resulted in the development of the semi-balloon or balloon type tire for use on regular wheels and rims to meet the emergency. While this has its merits, it promises to have only temporary adoption because of obvious disadvantages. But motor car manufacturers were quick to appreciate the greater value of true balloon tires and after exhaustive trials of them altered their new models to make possible the adoption of balloon tires either as regular or optional equipment.

First, there was the problem of suitable smaller diameter wheels and rims, which was quickly worked out by the cooperation of tire, rim and wheel manufacturers. Next, there was the matter of adequate fender clearance, which had prevented the adoption of true balloons on some makes of cars. Thus practically all motor car manufacturers have made due allowance for on their new models whether or not they have adopted balloon tires as regular equipment. Then there was the noticeably harder steering with balloon tires on cars not designed for them, which has been eliminated by changes in the steering mechanism. The greater degree of rebound with balloon tires was in most instances readily overcome by equipping cars with snubbers or shock absorbers, and in some instances by the substitution of stiffer springs, especially in front. In many instances this meant no change whatever, as a large number of medium and high-priced cars were formerly equipped with snubbers.

Two Outstanding Disadvantages

Unquestionably the two outstanding disadvantages encountered with balloon tires, when applied to cars originally equipped for high-pressure tires, have been hard steering and front wheel shimmy.

When balloon tires are substituted for high-pressure tires on cars originally equipped with the latter, steering becomes much harder at low speeds, and especially when parking, due to the greater traction surface of balloon tires. Above 15 miles per hour little difference is noted in the steering action. This difficulty is being eliminated in new cars originally equipped with balloon tires by suitable changes in the steering mechanism and the relation of the tire and wheel to the road. These changes include greater leverage in the steering gears, the correct pitch of the steering pins and the proper toe-in of the wheels. The 1925 model cars designed along these lines and equipped with balloon tires are as easy to steer as earlier models equipped with high-pressure tires and the usual steering gears.

Front wheel shimmy appears to be due to the design of the individual car. Certain cars develop this action at certain speeds, others shimmy more or less at all speeds, while some are entirely free from this trouble. Cars whose front wheels are positioned to utilize caster action are more likely to have pronounced shimmy than others. The angle of the steering knuckle is another influential factor. If the front wheels of a car tend to shimmy with high-pressure tires, that tendency will be increased when balloon tires are applied. Tire manufacturers assert that front wheel shimmy can be entirely overcome by proper design of the steering gear and correct pitch of the wheels. Increasing the toe-in of the front wheel reduces the shimmy in some cases. It is an engineering problem to be met by the car designer, yet as is usually the case tire engineers are going a long way toward solving it for them.

In the succeeding installment of this article there will follow an analysis of the front wheel shimmy problem and a review of the progress being made in solving it, together with some consideration of motor car weight distribution and spring characteristics, how balloon tires affect car shipment, the need of standardized sizes and a prophecy regarding the pneumatic tire of the future, and the questions involved should prove of interest.

The Manufacture of Fruit Jar Rings[1]

Enormous Annual Tonnage of Fruit Jar Rings—Technical Processes and Production Problems—Methods of Making, Curing, Cutting, Inspecting and Packing—Blooming and Non-Blooming Jar Rings

FRUIT jar rings are an old established line of rubber manufacturing. During the World War their production was stimulated greatly by appeals for food conservation during that period; thus the manufacture of rubber rings for preserving jars has grown to immense proportions. At the present time the annual production is probably approximately 1,300,000,000 individual jar rings, equivalent to 10,156 tons total weight.

Technical Difficulties

From the viewpoint of the rubber technologist, the processes involved in jar ring manufacture are relatively simple. The chief difficulties are the compounding of suitable rubber mixtures cheap enough to meet competition and that can be guaranteed to stand present day canning methods and age well. Not only must the manufacturer produce rings of various qualities and colors but he must keep the different grades uniform in quality at all times.

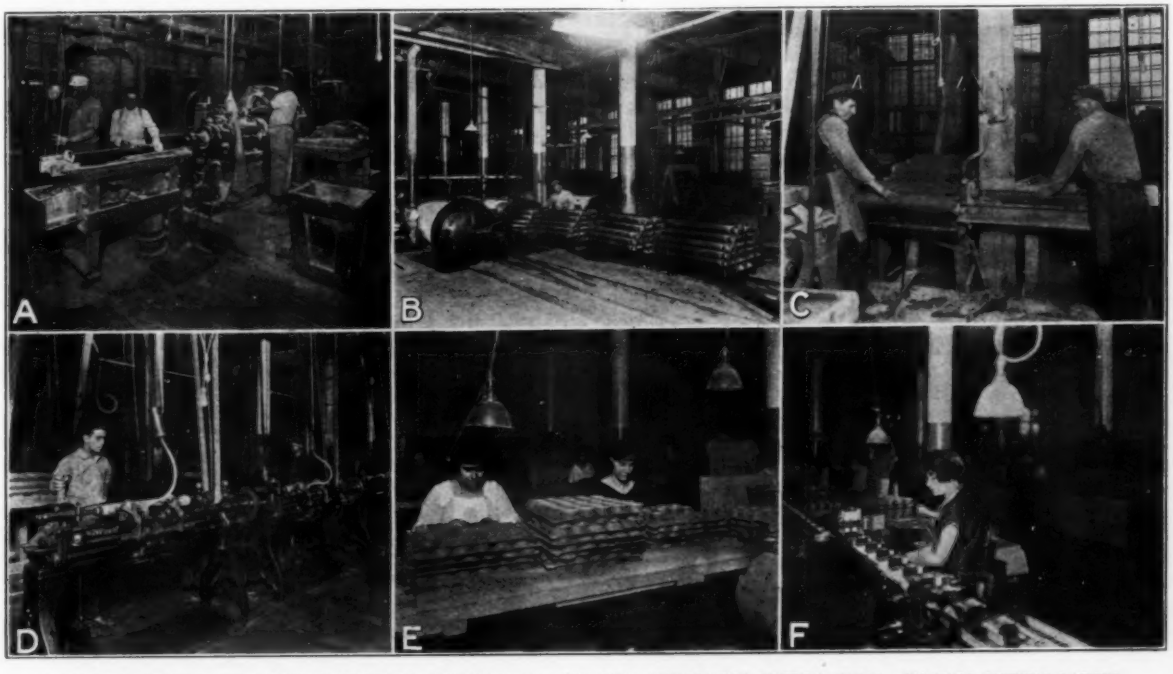
Mixing Rubber Stocks

Mixing the rubber jar ring stock is in no way peculiar to this particular type of rubber goods. The stocks are usually mixed on "fast" mills or in the modern enclosed mixers, and refined after mixing. This operation consists simply in passing the stock through rolls of differential speeds which are 0.004 inch apart. In this way any rough particles are broken up and dispersed.

The Tubing Process

Contrary to common belief, jar rings are not stamped out of thin rubber sheets, but are thin transverse cuts or slices from a hollow cylindrical tube.

To obtain the tubes from which the individual rings are cut, the unvulcanized stock, after refining, is plasticized in the familiar manner known as warming up, is stripped from the warming mill in a continuous narrow band and is fed into a standard tubing machine of large caliber. By a suitable choice of die and spindle, both the inside and outside diameter of the issuing stock can be controlled and the required dimensions of the finished rings can be maintained constant by changes in the die and spindle to offset variations which may occur in consistency and in the plasticity of the stock.



(A) TUBING PROCESS. (B) LOADING TUBES INTO VULCANIZER. (C) POLING TUBES FOR CUTTING RINGS. (D) RING CUTTING LATHES. (E) INSPECTING CUT JAR RINGS. (F) AUTOMATIC CARTONING MACHINE.

Principal Operations in the Manufacture of Rubber Fruit Jar Rings

Preparation for Vulcanizing

From the continuous tube of stock issuing from the tubing machine lengths of about three feet are cut. This operation is illustrated in illustration A. To insure a perfect shape these must be vulcanized on a hollow metal pole whose outside diameter is the inside diameter of the finished jar ring. By tubing the stock slightly smaller than the metal pole on which it is vulcanized it springs on the pole and is held under a slight internal tension. The tubing machine is equipped with a talc blower in such a way that a light cloud of talc is blown through the issuing stock and serves as a lubricant on the inside surface as the rubber tube is slipped

[1] Data and illustrations from The Boston Woven Hose & Rubber Co., Cambridge, Massachusetts.

on the metal pole. This operation can also be seen in illustration A.

Vulcanizing

The poled tubes are placed on small cars, which for convenience are run on a system of rails directly in and out of the steam vulcanizers. This is evident in illustration B, which shows the cars loaded with poles ready to be pushed into the near-by horizontal steam vulcanizers. Each vulcanizer will hold a train of several cars. In this way ready transport is accomplished from the tubing and poling processes to the vulcanizers and subsequently to the stripping machine. At the same time the poles are kept separate during the cure and allow complete access and contact by the steam. The time and temperature of the curing process are automatically controlled.

Preparation for Cutting

The vulcanizing process completed, the train of cars conveys the tubes to a machine which strips them from their metal poles by air pressure. This operation comprises setting the pole in a frame which is provided with air-jets issuing from small holes, and with an hydraulic plunger. The grip and tension of the rubber on the pole is released by the inflating pressure of the air entering between the rubber tube and the pole, and by a simultaneous impact of the plunger on the metal pole the latter is readily forced out of the rubber tube.

Cutting Tubes Into Rings

The vulcanized tubes are next prepared for cutting. Since the cutting is transverse, a suitable bed must be provided for the knife blades to strike as they penetrate the rubber. This is accomplished by forcing the vulcanized tubes onto a mandrel, the surface of which is covered with layers of some material like rubber frictioned cloth which serves as a firm cutting base but nevertheless does not injure the knives.

To simplify the process of removing the cut rings, the mandrel upon which they are cut is pushed out from the sliced tube directly into another tube to be cut. This can be seen in illustration C which shows the equipment for stripping the cut rings and driving the mandrel which holds them into a new tube. As in the stripping process, after vulcanizing, already described, forcing the mandrel into the tubes is facilitated by jets of air which expand slightly the rubber tube as the mandrel enters.

The cutting operation is carried out on lathes equipped with two or more circular knives. By a system of cams these are made to cut through the rubber tube and between each cut move longitudinally a distance equal to the thickness of the finished ring. The lathes are so constructed that the knives stop automatically when the entire rubber tube is cut. The lathe can be adjusted so that the knives will cut any desired thickness of ring. This cutting on special lathes can be seen in illustration D, which shows a tube partly cut.

Control of Sizes

It is evident that the size of a finished jar ring, which includes the inside diameter, the difference between inside and outside diameters, known as the flange, and the thickness, is controlled both at the tubing machine before vulcanizing and at the lathes after vulcanizing. The diameter of the metal poles determines the inside diameter of the finished rings, the annular space between the die and spindle of the tubing machine determines the flange and the distance which the cutting knives advance between cuts determines the thickness.

Inspection and Packing

After cutting and removal from the mandrels, the rings are slipped onto small metal rods and are passed through parallel partitions which vibrate, thus loosening and separating the individual rings which have a tendency to adhere. The rods of loose rings are then ready for inspection and packing.

All rings from the cutting operation are thoroughly inspected for rejection of the imperfect rings which are cut at the ends of the mandrels and where the knives meet on the lathe.

This work is accomplished best by hand labor as shown in illustration E, whereby every individual ring is inspected on each side to insure that it is of standard size and shape and faultless in texture. At the same time that the rings are examined individually they are counted into dozens, the standard number packed in cartons.

Many years ago jar rings for the trade were barreled in bulk and those for household use were boxed by hand in paper cartons.

Automatic carton filling machines of the type illustrated in F have superseded the bulk and hand methods of packing. Cartons in the flat and rings in counted dozen lots are fed to the machine which opens the individual cardboard cartons, slides each dozen rings into a carton, folds and seals the cartons with adhesive and conveys them to the packers, who place them by hand in larger containers ready for shipment.

Jar Ring Quality

It is impossible in a few words to outline the technique of jar ring compounding. It may be said, however, that designing successful jar ring stocks involves more technical difficulties than the details of the mechanical processes of their production. For example, a ring stock of uniform consistency, plasticity and rate of cure, requires constant attention at every step. Furthermore, the quality of the finished rings must be uniform day by day in color, physical qualities and ability to stand the present severe canning tests. In addition to all this they must be compounded and vulcanized so that they will not deteriorate in a year or two; in other words, they must age well. In fact, good aging quality is most vitally essential in jar rings as months frequently intervene between their manufacture and actual use.

Non-Blooming Rings

The difficulties of compounding under these conditions was aggravated several years ago by the advent of the non-blooming jar ring. A demand arose in the trade for jar rings which would not bloom yet would possess the desirable qualities of the blooming ring. Difficulty is always encountered in compounding on a large scale non-blooming stocks of high quality, particularly with respect to their aging. It is an established fact that a stock of a given type can be compounded and vulcanized to age longer if it contains free sulphur in excess of that soluble in the stock after vulcanizing; in short, if it contains enough free sulphur to bloom.

This becomes true to a greater extent the less rubber in the compound; in other words, the cheaper the stock. Experience of many years, by various manufacturers has demonstrated that it is practically impossible to manufacture non-blooming jar rings which age satisfactorily. Non-blooming rings have been produced on a large scale by different manufacturers, and in all the brands rings can probably be found which have aged well.

Doubtless there is no brand of non-blooming jar rings among which cannot be found rings which are extremely poor in aging. Consequently, it is an undeniable fact that there has never been a non-blooming brand of jar rings manufactured, the entire production of which has aged satisfactorily. The results obtained in recent years in attempts by various manufacturers to produce a satisfactory non-blooming jar ring are the severest indictment of non-blooming stocks which can be found.

Revival of the Blooming Ring

The present trend of the trade and the revival of the blooming ring is a promising indication that both the manufacturer and the public will be mutually benefited, the manufacturer in having fewer manufacturing difficulties and in turning out a better ring for the same money or as good a ring for less money and the public in being offered a stronger, more resistant ring and particularly a ring with a much longer life.

Machine-Made Inner Tubes[1]

Manufacturing Process Outlined—The Perfected Tubing Machine—Worm-and-Gear Reduction Unit—High Grade Tube Production at Low Cost

THE enormous production of inner tubes, approximating annually over 50,000,000, is possible only by the employment of mechanical facilities in stock preparation, building, curing and handling. Hand methods of tire and tube making have been practically superseded by the progress of a mechanical development which has given rise to keenest competition and the passing of the era of liberal profits in tires and tubes. The possibilities of saving in cost offered by improving the design and structural methods of tire building have taken precedence over similar changes in inner tube production.

Making Tubes on Mandrels

Briefly outlined, the usual process for manufacturing inner tubes is as follows:

High grade pure or compound sheet stock is run to a thin gage and to the desired width on the calender. It is then rolled in a liner for delivery to the making department. When made up by hand labor two men are required at a bench, one at either end, to handle the stock and mandrel. Their work consists in laying a strip of stock for a tube, full length upon the cushioned or padded front edge of the bench. After applying the labels for branding the tube with name and sizes they place upon it a straight mandrel parallel with the front edge of the rubber sheet. With this edge resting against the mandrel the rubber is wrapped about it by rolling both together over the cushion to the back of the bench. It is then placed in a lathe and spirally wrapped ready for curing.

Defects of Mandrel Tubes

The resulting tubes, however, possess certain inherent limitations and defects. Being made on straight mandrels they do not take the form of the interior of the tire casing when they are finally made endless, which gives rise to a tendency to cramp on one side under the pressure of inflation. The spiral wrapping always leaves a cloth impression, producing a series of welts or ridges with corresponding variations in wall thickness. This condition causes uneven tension in the tube under inflation.

In case of a tube made of a seamed single ply of stock there is added a ridge of stock more or less thick, the resistance of which to stretching disturbs somewhat the fixity of position of the tire valve, which is undesirable. The structural defects noted have been removed in part by the development of a circular curing mandrel.

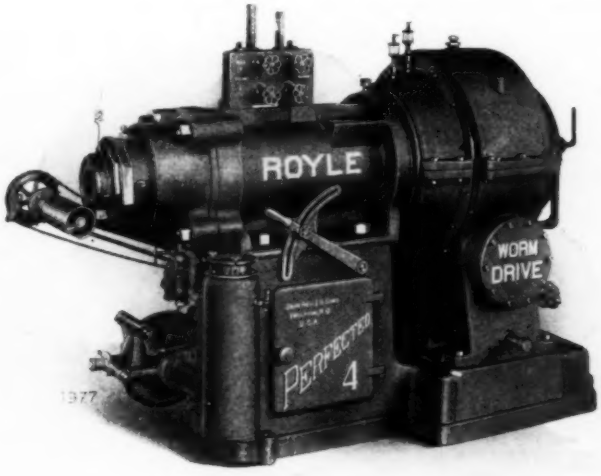
Features of the Perfected Tubing Machine

Eliminating hand-made tubes is now possible by the latest design of the perfected worm-geared tubing machine here pictured. This new machine accommodates the same wide range of service established by the older models. But by the simple adjustment of special features it is particularly adapted to the production of inner tubes.

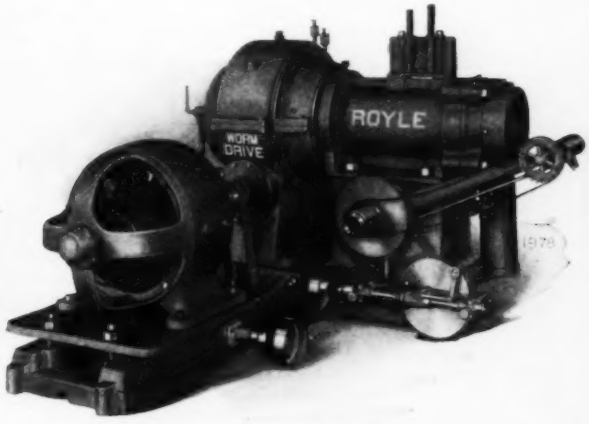
Worm-and-Gear Reduction Unit

A worm-and-gear reduction unit transmits the power of the motor to the stock worm of the machine. A ball bearing thrust of entirely new design absorbs the back pressure of the stock worm as it works the rubber through the cylinder.

These factors operate not only to produce a smooth, powerful running mechanism, but also to reduce very materially the motor power requirement of the unit. Moreover, the advent of the worm-and-gear transmission has made possible a very compact design with low head room, and an unusually small floor space requirement.



FRONT VIEW



BACK VIEW

Features of the Perfected Tubing Machine Include Worm-and-Gear Reduction Drive — Continuous Stock Feed — Patented Head and Dies—Electrically Heated Dies and Soapstone Tank

Cylinder Design Provides Continuous Stock Feeding

A new design of cylinder provides a wide feeding-in throat through which the rubber is so carried to the stock worm that it is rapidly taken into the cylinder in a continuous strip, just as it comes from the mill, and without any necessity of the operator forcing it into the machine. Once a strip of rubber is started

[1] Data and illustrations from John Royle & Sons, Paterson, New Jersey.

into the stock worm it will continue feeding automatically as long as it lasts.

Improved Head and Dies Electrically Heated

The success of this new tubing machine in making high grade inner tubes ranging from those for 3½-inch ordinary tires to those for 7.30 balloons is due largely to the steady pressure of the smooth running mechanism, exerted on the stock as it passes through the patented inner tubing head and die. All rippling effect is eliminated and a true gage maintained in the tube wall. The dies used are electrically heated.

The soapstone tank is asbestos jacketed and also electrically heated to retain the soapstone at the desired temperature and keep it absolutely dry.

A New Era in Tube Making

The introduction of this machine marks a new era in inner tube manufacturing economy and scientific production. Tubes of uniform quality and wall thickness are obtained direct from the warming mill, eliminating the costs of calendering, of aprons, and of rehandling materials; eliminating making, wrapping and unwrapping. It also makes it possible for the department head to control the production of material and to assume responsibility for material weights as well as direct labor. The quality of the product has been improved and the output, for the floor space occupied, increased, with a lower equipment investment and a lower direct labor cost.

New Process Animal Toys[1]

A recently developed new departure in making inflatable animal toys has distinct advantages over the usual practice of manufacture by either molding or dipping process. It admits of volume production on a low cost basis. The animal toy is made flat yet when inflated its legs are arranged in two planes and support it in standing position. Any four-footed creature can be formed at a single stroke and all molds and rubber solutions are dispensed with.

Molded Toy Animals

The usual machine-made hollow toy animal is formed by seaming both side pieces in a power press, employing a special spring cutting die. During the cutting the toy is partially inflated in preparation for the molding process. This method does very well for dolls, with arms and legs in one plane, but is not suitable for toys with legs in two planes. In the latter case the appendages being cut all in one plane must of necessity be subjected to considerable distortion to force half of them into a second plane in order that the molded toy may be capable of standing on its four feet. Toys thus formed are subject to considerable loss from seconds because the forceable twisting of the legs is liable to occasion seam leaks and cause overlapping of the stock. The latter shows as a crack or cut extending part way into the toy. While this may not cause leakage under inflation it renders the goods unsalable. Or if such a toy comes into service it fails quickly because the crack at the overlap is practically the beginning of a tear.

In hand-made four-footed toys the patterns are cut so as to bring the legs into correct relation to those of opposite sides, thus eliminating cracks by obviating the need for distortion to fit the mold.

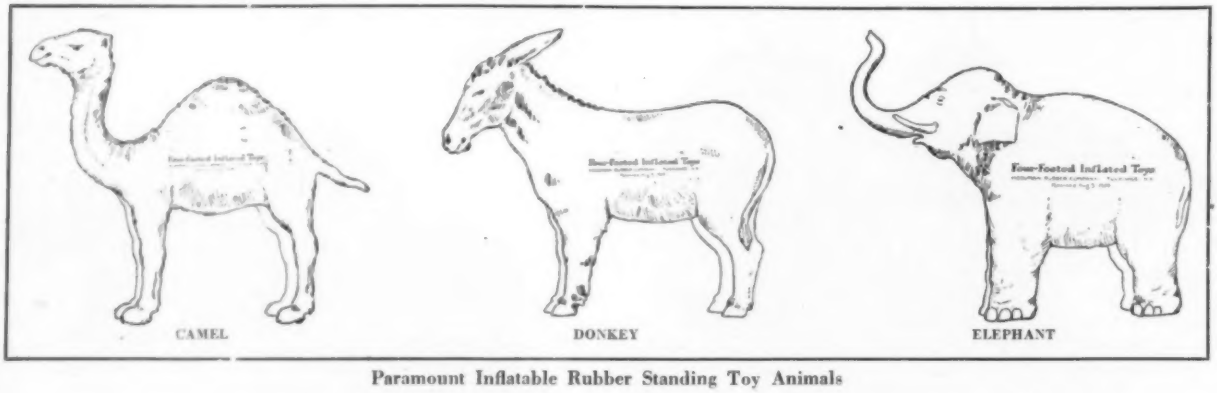
New Machine Method

By the new procedure calendered sheet of light gage pure rubber is lightly dusted to prevent adhesion. The sheets, cut in squares, are paired together and a picture of any desired animal is printed upon each side. The legs are formed in two planes, and width is given to the underbody of the animal by fold of the same calendered stock inserted between the two square sheets at the edge, where the legs are printed. A straight edged piece of paper lies as a separation in this fold of rubber. The printed plies of rubber thus assembled with intervening fold are laid on the platen of a power press, and a die of suitable outline corresponding to the animal desired is set upon it, according to the imprint. Sufficient compression is applied to cut and seam the outline, with the legs of opposite sides separated by the non-adhering paper ply.

The flat hollow animal thus formed is provided with an inlet for inflation by clipping off the tip of its tail, ear or, in the case of an elephant, of its trunk.

The goods are air cured and the final step is the insertion of a valve for inflation. This comprises a piece of small rubber tubing which, after the toy is blown to shape, is closed by a small solid piece of hard cured rubber rod serving as a stopper.

Toys made by this method, which is recently patented, are economically produced, will stand alone and as playthings are both inexpensive and attractive. The printing is done with printing ink, and the rubber stock is pure and harmless.



Paramount Inflatable Rubber Standing Toy Animals

[1] Data and illustrations supplied by Paramount Rubber Consolidated, Inc., Tuckahoe, New York.

TIRE SALES IN SWEDEN

It has been estimated that well over 100,000 tires will be sold in Sweden during 1924, this being a gain over the previous year. Dunlop casings are apparently in the lead, with an American make a close second. There seems to be a greater demand for Michelin tires, especially the small balloon sizes, and in general balloon casings are coming more and more into the Swedish market.

SWITZERLAND'S IMPORTS OF RUBBER TOTALED IN VALUE $2,688,401 in 1921; in 1922, $2,452,435; rising in 1923 to $2,909,256. Rubber exports however declined from $582,979 in 1921 to $482,448 in 1922 and $558,319 in 1923.

Analysis of Tire Production and Shipments

By Arthur R. Burnet

CAREFUL observers agree that the problem of outstanding importance in American industry today is *stabilization*. By this is meant the maintenance of the most economical relation between production, shipments and stocks. Evidence from the rubber, pig iron and many other industries proves that this is not a matter of mere theoretical or academic interest, but a vital question of profit or loss in terms of hard cash.

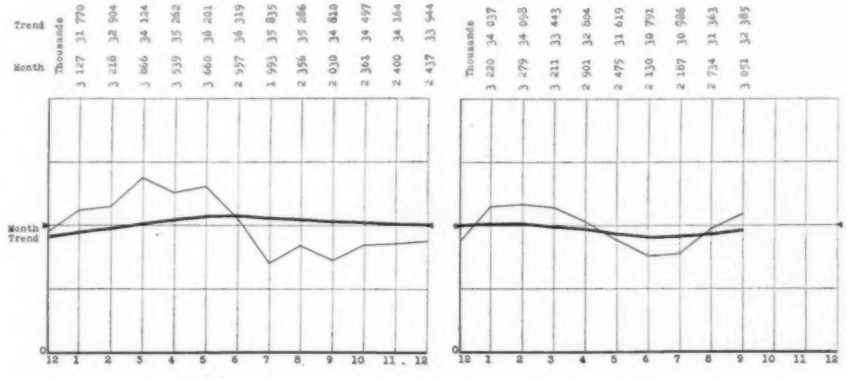
The situation is a very familiar one, especially to the rubber tire industry, but it will not hurt to restate it. Due to the impetus of the war and to normal growth, productive capacity in almost every line has been greatly enlarged. If this capacity is used during periods of lessened demand, the result is money tied up in inventory, and loss from depreciation on finished stock. On the other hand, idle plant means loss on invested capital, and a high unit cost of production,—often in itself a sales deterrent. In either case the product ultimately bears the charge, and the consumer pays the price. The problem is further complicated if the amount of stocks in possession of dealers is not known, or if the industry is by nature highly seasonal, or if it supplies finished products to the seasonal industries.

An accurate knowledge of the relation between production and shipping requirements in the rubber tire industry is highly important not only to the producer but to the dealer and large consumer as well, by reason of the working of the inescapable law of supply and demand and its effect upon price. There are, of course, those who think they can avoid or disregard this economic law, but history shows that it gets them sooner or later.

On an annual basis there ought to be a pretty definite relation between production and shipments. An individual month or a series of a few months may show a disparity between production and shipments which is compensated by additions to or subtractions from inventory, but in the long run the annual rates of production and shipments ought to be fairly close.

It is exactly this comparison that the accompanying charts are designed to bring out. They are technically known as Comparable Trend Charts. The light curves show the current monthly amounts, while the heavy curves are the trends. The light curves show the seasonal fluctuation, whereas in the heavy trends all seasonal changes have been automatically eliminated.

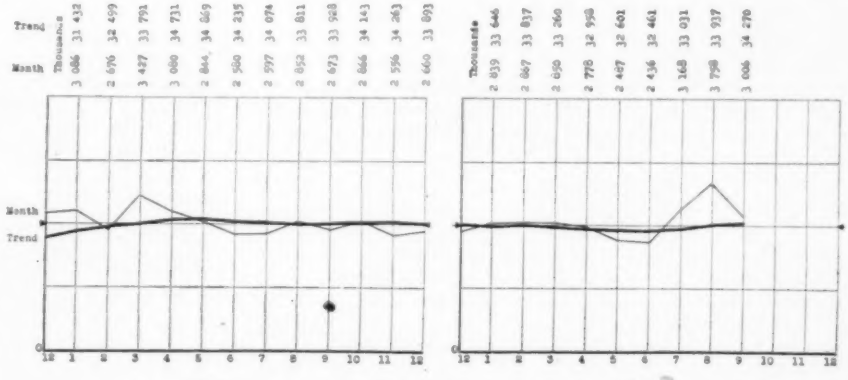
A significant feature of these charts is the middle horizontal ruling, marked with an arrowhead at either end. This line represents the average of the current monthly values during 1923, and at the same time it is made to represent the total for the same year. This middle horizontal ruling, therefore, becomes a convenient line of reference in 1924 as well as in 1923. Thus, it will be noticed that in September, 1924, both the current production and current shipments are above the monthly average for 1923, while the trend of production is below the 1923 level, and the trend of shipments is slightly above the 1923 level.



High Pressure Cord and Fabric Tire Production

The figures at the top of the charts represent the total of cord and fabric high pressure casings. For the sake of simplicity, and in order to secure a better comparison with 1923, balloon tires have been omitted from the picture.

The current monthly production curves show seasonal fluctuation: i. e., 1923 and 1924 have the same general shape. The seasonal comparison, strange to say, is not so evident in shipments. The large shipments of March and April, 1923, were not duplicated in 1924, although the falling off of shipments during the summer is seen in both years. The peak of shipments in August, 1924, is explained by competent authority, not as the result of a price cut, but as an answer to a demand that had not been met earlier in the year. In other words, the tires had actually worn out and had to be replaced. It will be noticed also that in 1923 the current monthly production curve fluctuated more widely than did the shipments curve. This meant, of course, that there were radical changes in inventory, which the industry well remembers. If you think of the middle horizontal ruling (marked by the arrowheads) as 100 per cent, then you will see that there were



High Pressure Cord and Fabric Tire Shipments

variations in production during 1924 approaching 25 per cent. How far are such large variations justifiable?

So much for the analysis of the current monthly (light) curves. The trend (heavy) curves give a truer picture of the situation. The trend has a distinct advantage in that it entirely eliminates seasonal fluctuation; it minimizes temporary and accidental variations caused by short months, the weather, distribution of holidays, exigencies of record keeping, etc. And yet the advantages are not obtained at the expense of disguising the figures by abstract mathematical computations. The reader will easily recognize the figures in these charts as those that have been taken from the Statistical Bulletin of the Rubber Association.

Because of its very nature, the trend gives the familiar "corresponding-month-last-year" comparison in this way: whenever the trend rises or increases its upward slope, it means that the month this year is larger than the same month last year, and whenever the trend falls, the reverse is true. Let the reader test this for himself. For example, the trend of production rises from August to September, 1924. This means that September, 1924, (light curve) was larger than September, 1923, (light curve); i. e., 3,051,000 as against 2,030,000. Consequently the trend gives a very complete picture. It is really an index of the subject to which it is applied, and for that reason it is a far safer guide than the current monthly record alone.

It happens in the case of the charts used in this article that they are all drawn on the same scale. They can be compared absolutely as well as relatively. For example, the current monthly production and shipment curves for September of this year fall at nearly the same spot, and represent amounts that are nearly the same.

There is a striking contrast between the trends of the two years. In 1923 production sloped upward during the first half of the year much more rapidly than did shipments, whereas in 1924 shipments show a higher annual rate. In other words, inventories have been in a much more economical condition in 1924 than they were in 1923. The fact that the trend curves with relatively little fluctuation makes it fairly easy to see where it is going to come out at the end of the year. The trends for both production and shipments are now pointing well above the 1923 level, but note in this connection that there has been a distinct slowing up of the trend of shipments from August to September of this year. Latest indications are that no radical changes in either production or shipments will occur between September and October. There will be no sudden changes in the direction of the trends.

The fact that shipments exceed production both in amount and in rate of increase (shown by the greater upward slope of the trend since April of this year) means that the industry as a whole is not over-produced as it has been in some memorable periods in the past. Careful comparison of the trends between August and September of this year shows a slightly quicker advance of production than of shipments, although the production of tires for the year ending in September was 32,000,000 produced, as against 34,000,000 shipped during the same twelve months. Projecting the present trend into 1925, a total of 50,000,000 shipments would seem to be a reasonable amount for that year.

What the individual producer should do in view of this analysis will, of course, depend upon his own position. If each manufacturer had his own figures plotted in Comparable Trend Charts, just as the trade group data are here presented, each one could tell instantly how his trends compared with those of the group, and he would know at once whether an advance or a decrease in his own production schedules were called for or were justified.

THE LEADING PURCHASERS IN AUGUST OF AMERICAN-MADE pneumatic casings for automobiles were: England, taking 16,044 such casings, value $186,782; Argentina, 10,940, value $130,925; Sweden, 7,531, value $116,047; Cuba, 11,850, value $115,836; New Zealand, 5,635, value $80,209; and Australia, 5,970, value $77,647.

Pipe Bending Chart for Rubber Engineers

By W. F. Schaphorst

Here is a chart that will be found valuable and convenient for determining the average radius of bend that should be given to common forms of pipe bends, numbers 1, 2, 3, and 4, as shown at the right, column E. Knowing the radius of bend, the size of pipe, and the form of bend, column D gives the expansion allowance of that bend.

For example, a 5-inch pipe was made to a radius of 40 inches, the bend being a common U-bend as shown by No. 2 in column E. What expansion may be allowed?

The dotted line drawn across this chart shows how the chart is used. Run a straight line through the 5, column A and the

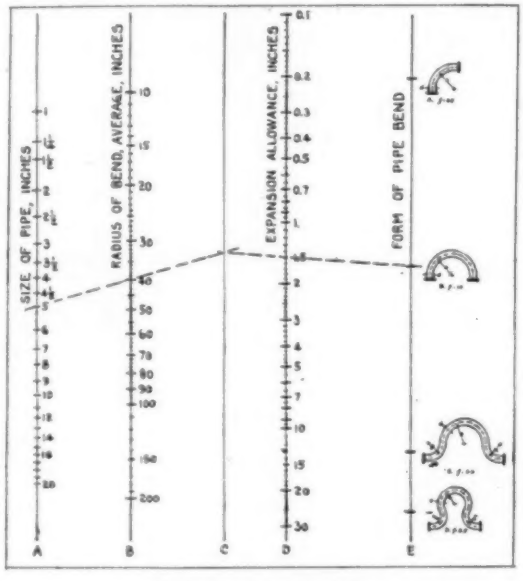


Chart for Pipe Bending

40, column B, and locate the intersection with column C. Then from that point of intersection run over to the mark in column E opposite the figure 2, and the intersection through column D gives the answer as 1.5 inches expansion allowance.

Similarly, if the expansion allowance is already known, if the form of bend is known, and if the size of pipe is known, the average radius to which the bend should be made may be determined. In other words, knowing any three of the four factors given in columns A, B, D, and E the fourth or unknown factor is easily determined by following the method as explained above.

This chart is based upon the following much used and well known rules:

Bend No. 1. Square the average radius of bend in inches and multiply by 0.0026 and then divide by the outside diameter of the pipe in inches.

Bend No. 2. Same as No. 1 but use 0.0052 instead of 0.0026.

Bend No. 3. Same as No. 1 but use 0.0104.

Bend No. 4. Same as No. 1 but use 0.013.

In the chart all of these operations are already performed: the radii are squared, exact outside pipe diameters are employed, and the proper factors are used.

YUGOSLAVIA IMPORTED IN 1921 622,346 KILOS OF RUBBER GOODS, value 21,389,766 dinars, and in 1922 1,058,657 kilos of such goods, value 57,244,254 dinars. Conversions made at the average exchange rate of the dinar are: $0.024 for 1921; $0.014 for 1922.

Development of Materials and Technique in Rubberizing Corset and Girdle Cloth

Growing Popularity of Rubber Corsets and Girdles—Types of Fabric—Calendering Operations—Doubling, Vulcanizing and Finishing—Typical Plant Layout

AFTER constant experimentation in the laboratories of rubber manufacturers, the rubberizing of corset cloth has been perfected on a standard basis, and the rubber mills equipped to handle this material are processing a steadily growing volume of it. Reports from corset producers and the retail trade indicate that the garments have attained wide popularity, not only as reducing corsets but also as regular girdles. Women have found them so comfortable and practical that according to predictions the day is not far distant when all corsets will be so constructed. Corsetiers find that the impetus of sales of rubber lined girdles has brought about a revival of corset wearing in general.

Practically assured, then, of a continuance of the demand, rubber factories now engaged in this work are making what changes in layout and equipment they need in order to produce economically. To date, any attempt to cut prices has been forestalled by the recent rise in the price of crude rubber. As time goes on, the business will remain with those manufacturers who have been able to make a reputation for themselves by the quality and uniformity of their work. There are few, if any, corset manufacturers who will be tempted to install rubberizing plants of their own, owing to the machinery investment necessary and their own lack of adequate experience and background.

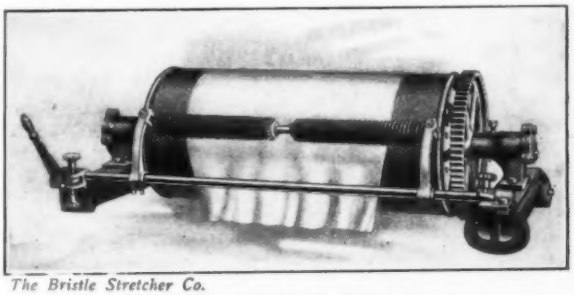
Types of Fabric

Just at present, competition in the textile field is especially keen to discover the types of fabrics best suited for rubber girdles. Silk manufacturers are concentrating on tricot and milanese types dyed flesh pink, knit on 80-inch drawing frames and slit to 40 inches. Their greatest problem at present is to produce longer pieces, as the ordinary silk drawing frame will only accommodate about 22 yards of finished material. In an effort to meet the demand of rubber manufacturers for longer cuts some silk mills have already lengthened their drawing frames to 50 and even 75 yards. This is to the advantage of the corset as well as the rubber manufacturer, as the waste in rubberizing occurs at the start and finish of the piece. Part of this can be eliminated by sewing, but this is bothersome for the corset manufacturer in cutting out his garments, especially when seams occur every 20 yards.

The possibility of runs in tricot silk is an objection to this material, the silk maker having no way of catching them up after they once occur. The milanese garment, with its beautiful finish and luster and greater lateral stretch, is the most attractive of all, and probably is the highest quality garment made. The greater stretch in milanese makes it the more difficult fabric to rubberize of the two.

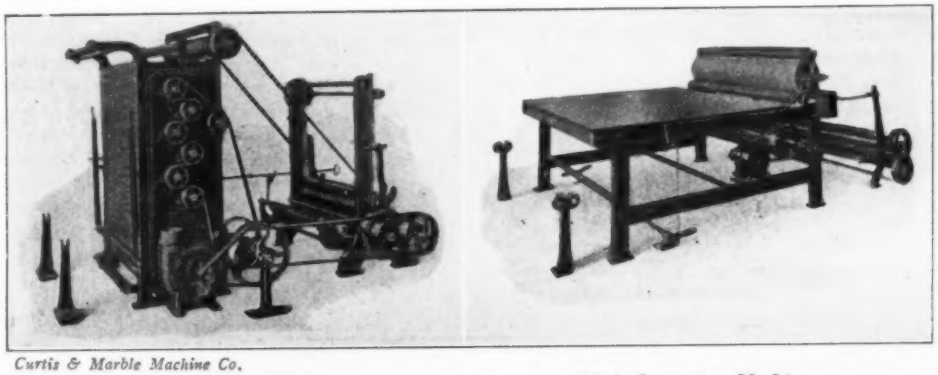
While not presenting the beautiful finish and appearance of silk, mercerized cotton is more durable and represents less than half the investment in cloth. It is destined, therefore, to be the greatest volume producer of the two. Cotton knitters have not the silk manufacturers' problem on lengths and are able to furnish 100 and 200-yard continuous pieces for rubberizing. It is not good practice to rubberize more than 100-yard pieces, however, as it makes the doubled rolls too bulky to handle, and there is further danger of damage in the center of the roll from the excessive weight and pressure. Knitting defects in the cotton stockinette are very objectionable, and corset cloth demands as nearly a perfect knitting job as is possible to produce.

If the ends of yarn are not joined properly, or if mends are poorly done, with threads left hanging and loose, they will cause lumps and imperfections which show up badly when the goods are rubberized and double faced.



The Bristle Stretcher Co.

Brush Fabric Stretcher



Curtis & Marble Machine Co.

Liner Brushing Machine

Fabric Inspection Machine

The question of dyeing the cloth, either silk or cotton, has a very vital relation to the success of the rubberizing job. The color must be absolutely even in the piece, and free from all streaks or blotches. It is imperative that the shade of pink be as dark as or preferably a little deeper than the shade of rubber, otherwise the darker rubber showing through the lighter cloth will cause an illusion of streakiness. This calls for close co-operation between the cloth dyer and the rubber chemist.

Cotton goods when slit are usually sized at the edges to prevent curling, but if the rubberizer uses a brush stretcher on the back of his calender, this is not absolutely necessary. Silk is never sized, owing to its light and transparent nature.

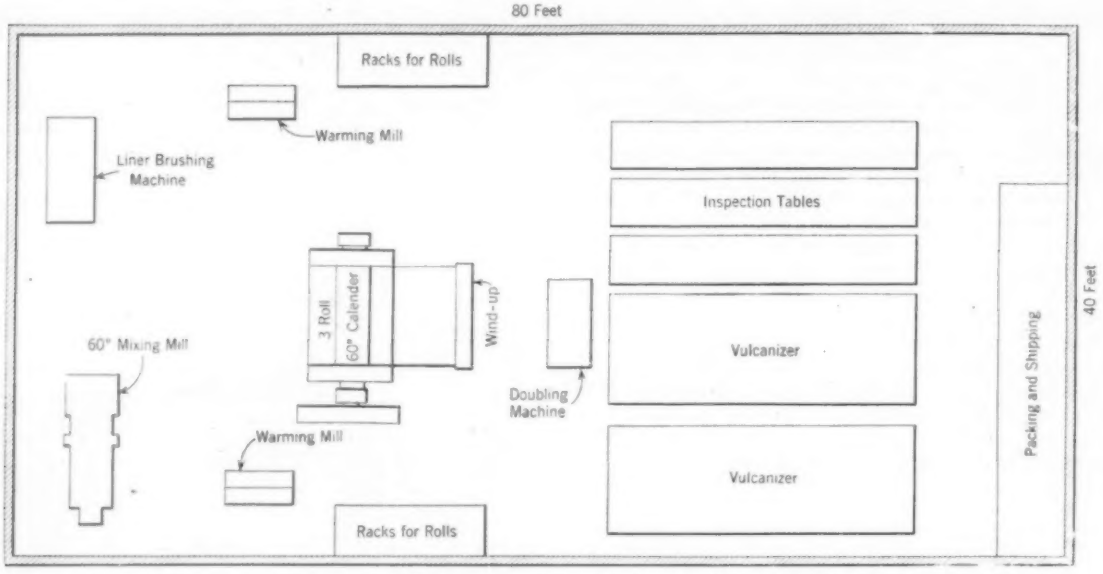
Calendering Operations

The calendering operations present several difficulties which can be overcome by close supervision and experience. As practically all corset rubber compounds contain a super accelerator, the gum must be closely watched to prevent it becoming set or burned. If sufficient care is taken there is no need for any loss to be suffered due to burning of the batch or cured lumps appearing in the finished cloth. The mill man needs little, if any, heat on his mill rolls, and if he knows his job, he should experience no trouble after he has warmed this type of compound several times. Lumps and streaks appearing in the goods as they come off the calender are due to carelessness by the backtender in allowing the gum to work out over the guides into the greasy roll sockets, and thus remain against the warm rolls too long. If the gum on the extreme ends of the face roll is knife trimmed and allowed to feed into a clean receptacle, this trouble will disappear.

The calender man must watch the heat on his bottom roll, which must be maintained, in conjunction with pressure, just enough to insure adhesion and yet not enough to strike the rubber through the light cloth, rendering it unfit for use. All calenders for corset rubberizing should be equipped with cooling rolls or plates to prevent any striking through after the cloth sets in the liner due to excessive heat contained therein.

Importance of Liners

The type of liners used and the manner of putting them up has a very decisive effect on the quality of the rubberizing job. As all silk garments and many of the lighter weight cotton ones are tested for flaws against a strong light, their transparency shows up any calender roll imperfections and lint and wrinkles from liners. Mercerized, bleached, singed, or any high quality fine weave fabric not over 8 ounces in weight is suitable for liners. These must be rewound smoothly and brushed thoroughly each time before using. A winding and brushing machine is very effective for this purpose. Seams in liners are not permissible, as they make a mark on the corset cloth before curing, and very often loose threads or ravelings pull off and are pressed into the gum, to the detriment of the finished product. It is advisable to have all liners measured, stenciled, and hemmed at the ends, and bag protectors made to cover each end as a protection against dirt.



Typical Layout of a Corset Cloth Rubberizing Plant—Production 4,800 Doubled Yards in 24-Hour Day

Doubling the Fabric

At the doubling machine the points to be watched are: starting the roll correctly, tensions, and keeping the rolls lined up even so that there is no overlapping of edges. In starting the roll a clean, polished mandrel must be used and the cloth trimmed square at the starting end. The piece must be wound on the shell absolutely even, without any folds, wrinkles or bunches of any kind, as these will mark the roll at every revolution for many yards.

Cleanliness, of course, is the watchword in corset rubberizing. The wearing of gloves is desirable, and if a clean set of uniforms are provided for the workmen, the hazard is lessened. The thing can be systematically worked out at the calender, doubler, and vulcanizer so that the men who handle greasy bars and other dirty equipment do not handle the corset cloth itself.

Dry Heat Vulcanizing

Feeding the rolls of fabric into the vulcanizer is done automatically by machines for this purpose. Bar marks are an objection in the finished product, and probably the best way to avoid them is to have bars of sufficient circumference to absorb the fold without marking, and by not having the festoons too long. It must be remembered that this material weighs very nearly a pound per yard when finished, and a thirty-foot festoon means a weight of 20 pounds distributed between two mandrels or curing poles. If the material is draped so that the total length between the poles is 15 feet, the danger of pole marking is lessened. Placing the poles too close together will also cause marking. Heats must be loaded and unloaded promptly, as a slight undercure is preferable in this type of compound.

Final Operations

The final operation is measuring, inspecting, and trimming. Corset manufacturers specify 50-yard rolls as near as possible, width to be at least 36/37 inches exclusive of selvage, and gage to be within two one-thousands of specifications. Brassiere weight is .025 to .030 gage; corset and girdle weight .035 to .040. Considerable difficulty was experienced in maintaining gage standards at first because corset manufacturers were found to be using calipers and micrometers with screw attachments. Naturally the gages they specified were much lighter than they really wanted.

Manufacturers of dial rubber gages should canvass the corset trade, and thereby do both the corsetier and rubberizer a favor.

Factory Layout

The accompanying plant layout gives an idea of what might be done to facilitate production if a manufacturer had in mind a separate unit for corset cloth. This would concentrate production, remove the dirt problem which is present in every rubber mill, and improve supervision. Such a unit could produce 4,800 doubled yards in a 24-hour day. This figures calender capacity at 400 yards per hour, and vulcanizer production 400 doubled yards every two hours.

Improved Attachment for Scott Rubber Tester

A NUMBER of devices for recording stress-strain data in rubber testing have been designed that substitute for the usual charted dial a smooth metallic disk arranged to hold a circular chart, through which small punctures are burned by an electric spark whenever the operator, at any desired elongation, closes the circuit by a conveniently located button switch. Such a device was described by C. J. Burkley about two years ago.[2] This type of stress recorder has recently been improved so that 12 test pieces can be run without changing the chart.

Referring to the illustrations, Figure 1 shows in front and side views the principal features of this attachment as designed for the Scott rubber tester. The details indicated are: A, dry cells; B, induction coil of Ford engine type; C, small gage flexible copper wire; D, push button switch on elongation pointer; E, dial hand of thin flat brass; F, slot in hand for sliding adjustable spark point G; H, aluminum dial; K, brass bushing; L, flat top knurled screw to hold dial hand in place; M, insulated fiber to which brass hand E is riveted; N, clips for holding chart in place; O, vertical diameter scored on dial for centering chart; P, pointer for following elongations; Q, steel tape.

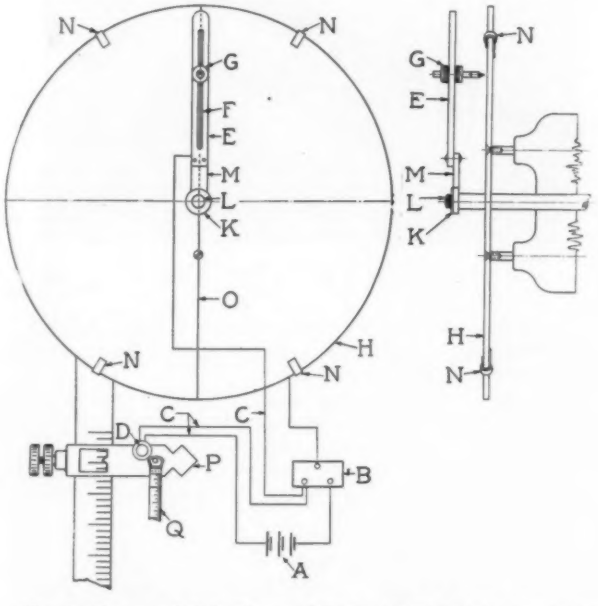


Fig. 1. Front and Side Views of Dial with Electrical Connections

The operation of this sparking device depends upon the insulation of the dial H from the hand E, which carries the spark point G. This is accomplished by using the flat fiber or hard rubber strip M. The button switch is placed on the upper elongation pointer, where it is more convenient and less confusing than a foot switch.

The style of chart employed is illustrated in Figure 2. It is provided with two scales so that it may be used with or without the large weight on the pendulum of the testing machines for recording stress-strains.

In placing the chart in position, the center lines at top and bottom are placed over the vertical diameter marked on the aluminum dial face. The side arm of the testing machine is then allowed to swing free, and then the hand E is screwed firmly in place so that the spark point G is directly over the zero mark, that is, the 50 or 250 pounds point on the chart. For the first test piece the spark point is adjusted to record in the ring nearest the center of the chart and is moved one space toward the outer circumference for each succeeding test.

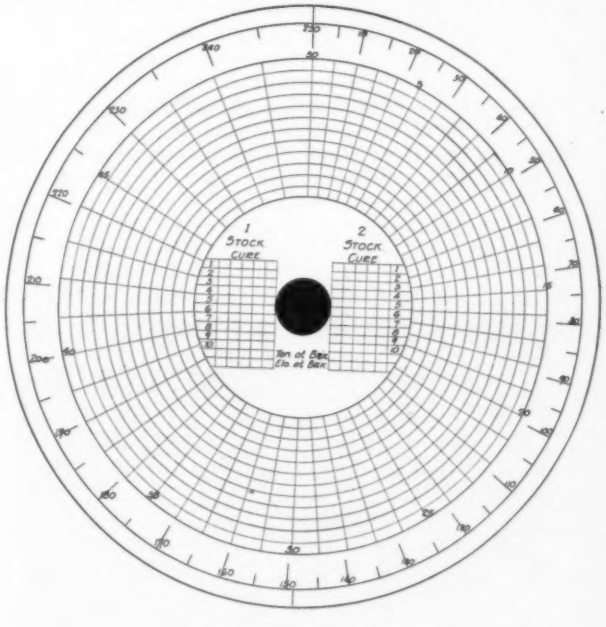


Fig. 2. Chart Used on Dial

The thickness of each test piece should be noted on the chart, and the load values, after calculation to pounds per square inch, are recorded in the space provided in the center of the chart. The stress-strain curve is then plotted from these data and the chart filed for future reference.

[1] Data and illustrations from the Du Pont Rubber Laboratory, Wilmington, Delaware.

[2] THE INDIA RUBBER WORLD, October 1, 1922.

Technical Rubber Laboratory

AMERICAN rubber trade consulting service laboratories usually specialize in one or more of the following lines: (1) chemical analysis; (2) physical testing; (3) scientific research and development of processes and products; (4) manufacturing demonstration of compounds and products.

Fig. 1. Rubber Analysis Room

One of the best known American consulting rubber laboratories is that of Dr. Lothar E. Weber, 729 Boylston street, Boston, Massachusetts, founded in 1911 by Dr. Weber, son of the late Dr. Carl Otto Weber. This laboratory is not a successor to that of the father, which was discontinued at his death in 1905. The activities of the Weber laboratory are devoted solely to the various branches of the rubber and allied industries, its chief function being service as consultant to rubber and allied industries and aiding in the solution of manufacturing problems and removal of technical difficulties. Although analytical work is secondary and incidental to the chief feature of consulting service, its volume is necessarily large in amount. In fact, during the past 13 years over 25,000 samples have been received, subjected to analysis, and the results

Fig. 2. General Analytical Bench

classified and filed in the laboratory record. These samples comprise every raw material used and finished product turned out by the various branches of the rubber trade. Thus the rubber industry as a whole is being covered continuously. No particular branch is favored or specialized upon either in the analytical or consulting activities.

The universal application of rubber in modern life involves its combination with every sort of raw and manufactured product. The multiplicity of material represented covers a very wide field and requires corresponding completeness of laboratory equipment for its chemical examination. In this connection the illustrations here shown display the analytical facilities of a modern rubber laboratory.

Figure 1 represents the room devoted to rubber analysis. On the analytical bench the set-up of a Liebig's condenser indicates a distillation in progress. In the hood are to be seen ignition stands and waterbaths for slow evaporation while in the corner of the room is placed a large battery of extractors for rubber analysis. At the right of the picture is shown a miscellaneous collection of glassware draining above the sink.

Figure 2 shows the analytical bench with a series of simultaneous analyses in progress over individual Bunsen burners, while the analyst at the left is engaged in manipulating samples in the usual drying oven at the end of the bench.

The third view, Figure 3, shows the arrangement of the weighing room. On the table a variety of samples are arranged on sheets for notes and records preliminary to analytic work. At the right a chemist is making weights on one of three precision balances.

Fig. 3. Balance and Calculating Room

In the matter of rubber mixing formulæ the original and invariable policy of this laboratory is not to supply actual working formulæ or recipes to clients.

It has become generally appreciated in the rubber industry that particular formulæ for rubber mixings do not necessarily guarantee the manufacture of an invariably perfect product. Practical results frequently fall short of expectation on the identical formula in different factories because of lack of experience or other varying circumstances or conditions.

It comes within the scope of the consulting work of the laboratory, however, to modify and amend any formula or process submitted that may have proved unsuitable and to recommend changes in them based upon the particular shortcomings of those under consideration. The established policy mentioned above explains the otherwise anomalous circumstance that not a single formula is on file in the laboratory records.

ACCORDING TO *Commerce Reports*, IMPORTS INTO CZECHOSLOVAKIA of rubber and rubber goods from the United States totaled in 1922 1,823,322 crowns, the figure rising in 1923 to 2,449,385 crowns. The Czechoslovak crown is valued at $0.028. It is said that there is a considerable demand for American rubber goods, automobiles, and automobile accessories, but that there is great difficulty in securing import licenses.

What the Rubber Chemists Are Doing

Recent Developments in Rubber Accelerators[1]

By Julian F. Smith[2]

IMPORTANT considerations bearing on the choice and use of accelerators are given in the following extracts:

Purpose of Accelerators

The primary purpose in using accelerators was originally to shorten the curing time. But the change in method led to other advantageous results, so that accelerators are now used for the threefold purpose of improving the mechanical properties, shortening the time of cure, and improving the aging properties. The effect of accelerators on mechanical properties may be visualized by comparing the tensile strength curves for the same stock when vulcanized with and without an accelerator. The increased strength and elasticity may be attributed in many cases to the fact that a shorter time or lower curing temperature is possible when an accelerator is used; by decreasing the effect of heat there is less disaggregation and the cured product is therefore stronger. The effect on aging properties is due to retardation by the accelerator of the slow atmospheric oxidation of rubber. No accelerator totally inhibits the oxidation, but most accelerators retard it and thus lengthen the life of the cured article.

Kinds of Accelerators

Although it is common to speak of high temperature and low temperature accelerators, there is no sharp line of demarcation. The former are those that do not exert their maximum effect on the cure until a relatively high temperature is reached; but even these exert some curing effect at low temperatures. The low temperature accelerators are those which begin to exert their maximum effect at relatively low temperatures.

The so-called ultra accelerators constitute a recent improvement in the low temperature accelerators. Certain of the xanthates and the dithiocarbamates will cure fairly rapidly at ordinary temperatures. The temperature of maximum effect is somewhat higher (50 degrees C. or above), but the action is rather rapid at room temperature.

Most organic accelerators belong in one of the following groups: (1) Organic bases, or compounds which form bases during vulcanization. (2) Carbosulphhydryl derivatives (thioureas, dithiocarbamates, thiurams, disulphides derived from mercaptans, dithio acids, xanthates, thiazole derivatives). These compounds either contain the grouping C-SH or undergo reactions by which it is formed. (3) Nitroso compounds.

Accelerators of the first two classes generally require the presence of an activator, usually zinc oxide, to bring out their maximum curing effect. This activation is attributed to the formation of a metallic salt of the accelerator or of one of its reaction products. Certain zinc salts, such as the stearate or oxalate, function in the same way as zinc oxide.

Factors Influencing Choice of Accelerators

In choosing an accelerator for a particular purpose, the following factors must be considered:

COST.—Both purchase price and the result obtained enter into this factor. Thus, an expensive accelerator of high power may be more economical to use than a cheaper low-powered accelerator.

EASE OF HANDLING.—Some liquid accelerators are volatile or do not mill into the rubber readily; some solids tend to escape as dust or do not disperse into the rubber. For accelerators that are difficult to disperse a master batch or a flux may be necessary.

VARIABILITY.—The accelerator for a given mixing should be uniform in composition and amount from batch to batch.

TOXICITY.—Aside from any effect on the value of the finished goods, there is a serious disadvantage in the use of poisonous or irritating substances. The added burden of maintaining industrial hygiene may even be sufficient to switch the choice to a nontoxic but otherwise less desirable accelerator.

ACTIVITY.—This is exerted in a variety of ways. The rate of cure may be slow or rapid, and may or may not be uniform; that is, there may be a rapid initial action followed by a slow final cure, or vice versa. The effect on tensile strength or modulus of elasticity may be great or small. An accelerator that gives a high tensile strength may give a high or a low elongation. Again, activity is manifested in the temperature and time required for curing. All these phases of activity need to be considered in adapting the accelerator to the desired result.

COLOR EFFECTS.—Some accelerators cause discoloration and hence are unsuited for white or very light colored compounds. Paraphenylene diamine is an example. This disadvantage is not always limited to light colored stocks; even the blackest compound may be thrown off color.

GENERAL APPLICABILITY.—Other factors being equal, the choice of an accelerator for a particular purpose will go to that one which can be used for the greatest number of other purposes.

SHAPE OF CURING CURVE.—The shape of the curve obtained by plotting tensile strength against time of cure (under constant conditions of temperature and composition) is an important factor. The curve may show for one accelerator a rapid rise to a maximum tensile strength, quickly followed by a rapid fall. Another accelerator may give a slower rise and a nearly or quite horizontal curve at the maximum. This feature, known as the "plateau effect," is desirable because it avoids overcuring (a falling curve).

Hot Cure Methods

OPEN STEAM.—Accelerators for open or wrapped steam cures should preferably be not too easily soluble in hot water and not decomposed by steam. Diphenyl guanidine is commonly used.

PRESS OR MOLD.—Nearly all the common accelerators are applicable to some of the mold cures. Two of the old favorites are hexamethylene tetramine and thiocarbanilide. The amines and aldehyde amines are also used, as are some of the more recently developed accelerators, such as the thiuram derivatives.

HOT WATER.—Dark-colored sheeting or packing and hard-rubber sheet are the chief items that are cured in hot water. Hard rubber is coated on both sides with tin, and other goods are wrapped in cloth before immersing. Heat is supplied directly or indirectly by steam. Diphenyl guanidine is often used in hot-water cures. Some of the aldehyde amines are also used.

DRY HEAT.—Dry heat places a limitation on the choice and use of accelerators, because many rubberizing compounds contain litharge, which has a tendency to inactivate many accelerators. The inactivation is due to formation of unstable lead salts of the accelerators. This limitation does not apply to accelerators that do not form unstable salts of the metals, and it is even possible sometimes to overcome the difficulty and make use of compounds which do give unstable salts. Thus some of the xanthates and dithiocarbamates have been used, and thiocarbanilide and some of the thiuram disulphides have also found application in dry heat cures.

SOAPSTONE.—Hollow articles, such as tubing and various druggists' sundries, are embedded in powdered soapstone and heated by

[1] *Industrial and Engineering Chemistry*, October, 1924, 1024-1026.
[2] The B. F. Goodrich Co., Akron, Ohio.

steam to the desired temperature. Any of the accelerators found satisfactory for dry heat will be suitable for a soapstone cure.

Cold Cure Methods

ACID CURE.—A solution of sulphur chloride, usually in carbon disulphide, is the curing agent. Goods dipped in the solution are almost instantaneously vulcanized at the surface. The method is comparatively cheap, but has several drawbacks. The lack of penetration of the curing agent limits the application to very thin articles, such as toy balloons, dental dam, dress shields, and the like. The irritating and toxic nature of sulphur chloride necessitates care in handling. The use of carbon disulphide involves a fire hazard. The choice of coloring agents is greatly limited because most organic dyes are attacked by sulphur chloride. Finally the mechanical and aging properties of an acid-cured article are inferior to those of a like steam-cured article.

VAPOR CURE.—The sulphur chloride may be applied as vapor instead of in solution. Except for the absence of solvent, the foregoing remarks concerning acid cure are equally applicable.

Owing to the high speed of these cures, there is no need for using accelerators to shorten the time. Adding accelerators for any other purpose is useless, because organic accelerators are decomposed by sulphur chloride. Hence it is not customary to use any accelerator for an acid or vapor cure.

AIR CURES.—Certain so-called ultra accelerators, among which are some of the xanthates and dithiocarbamates, will cure rubber at ordinary temperature if allowed to stand. This method is too slow, however, for any manufacturing process in which large production is wanted.

Consistency of Rubber-Benzene Solutions[1]

By Winslow H. Herschel[2]

The rubber experimental stations in the Dutch East Indies have found that, although the behavior of rubber during and after vulcanization cannot be predicted from determinations of the so-called relative viscosity, this test, combined with vulcanization tests, gives valuable indications, and in certain investigations viscosity determinations alone may be of use.

Distinction Between Viscous and Plastic Materials

Viscosity is the constant ratio of shearing stress to rate of shear. A material is considered plastic if the apparent viscosity (ratio of shearing stress to rate of shear) varies with the rate of shear. Viscosity can be expressed by a single numerical value, but the consistency of a plastic material must be expressed by an equation or other means which completely defines the variable relation between rate of flow and the force that produces it.

It is to be expected that true solutions and mixtures of miscible liquids will be viscous, but that mixtures of a liquid with a powder or finely divided material will be plastic, if of sufficiently high concentration. In cases of doubt tests are necessary, the essential requirement being that successive trials be made at different rates of shear. The standardization of the rate of shear, as has been proposed, may enable different laboratories to obtain the same numerical results, but the complete relation between the rate of flow and the force which produces it cannot be obtained by a single test. Two different plastic materials which show the same apparent viscosity on a single test would not necessarily have the same consistency.

Conclusions

1. Tests of the consistency of benzene solutions of rubber should be made by a method which permits the distinction between a viscous and a plastic material to be observed and reported.

2. Results should be expressed in poises when the solution is found to be viscous.

3. At least two numerical values are required to express the consistency of plastic materials such as (at least in some cases) benzene solutions of unmilled rubber.

[1] Presented under the title "Method of Determining Consistency of Benzene Solutions of Rubber" before the Division of Rubber Chemistry at the 67th Meeting of the American Chemical Society, Washington, D. C., April 21 to 26, 1924.

[2] Bureau of Standards, Washington, D. C.

Chemical Patents

The United States

VULCANIZING PROCESS. This consists in treating rubber with sulphur and a metallic salt of dithiocarbamic acid.—Yasujuro Nikaido, assignor to Michigan Chemical Co., both of Bay City, Michigan. United States patent No. 1,513,122.

METHOD OF DISPERSION OF GUM INTO A COLLOIDAL SUBSTANCE. As a new composition of matter, a colloidal mixture of rubber and a water absorbent colloid is produced by mastication of the two in plastic form, the rubber being dispersed in a continuous phase comprising the colloid and the ratio of rubber in the mixture being substantially the same as in natural rubber latex.—Harlan L. Trumbull and John B. Dickson, Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,513,139.

PROCESS AND PRODUCT OF VULCANIZING CAOUTCHOUC. A process of vulcanizing caoutchouc that comprises incorporating with a caoutchouc mix di-meta-xylyl-thio-urea and vulcanizing the mix.—L. B. Sebrell, assignor to The Goodyear Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,514,571.

The Dominion of Canada

PROCESS OF MAKING RUBBER COMPOSITIONS. Compounding materials ground in water with a protective colloid against coagulation are added to rubber latex and after mixing the rubber is coagulated and water separated.—Robert B. Russell, Rhodes, and Herbert Broomfield, Hazel Grove, Stockport, England. Canadian patent No. 242,054.

VULCANIZATION OF RUBBER. As a vulcanization accelerator, a material formed by the reaction of anhydrous zinc sulphide or cadmium sulphate with ammonia.—Herbert Skelton, Middleton, England. Canadian patent No. 242,122.

RUBBER MANUFACTURE. Vulcanization of rubber by the use of dipiperidylthiuram sulphide as an accelerator.—The Canadian Consolidated Rubber Co., Limited, assignee of S. M. Cadwell, Leonia, New Jersey. Canadian patent No. 242,137.

VULCANIZING PROCESS. Combining with rubber a vulcanizing agent, zinc in combination, carbon disulphide and an aromatic amine.—The Canadian Consolidated Rubber Co., Limited, assignee of S. M. Cadwell, Leonia, New Jersey. Canadian patent No. 242,138.

VULCANIZING PROCESS. The method of preventing the transmigration of a vulcanizing agent between juxtaposed stocks by interposing between them a coating of glycerine.—The Canadian Rubber Co., Limited, assignee of John P. Coe, Hastings, New York. Canadian patent No. 242,139.

RUBBER COMPOSITION. A composition of rubber and thermatomic carbon.—The Thermatomic Carbon Co., assignee of Roy H. Uhlinger and Robert C. Moore, all of Pittsburgh, Pennsylvania. Canadian patent No. 242,162.

UNWORKED PURE RUBBER SHEETS. The process for the immediate production of mechanically unworked pure rubber sheets from latex which consists in freeing latex from impurities and thereupon precipitating the rubber from the purified latex by electrophoresis upon a supporting surface having anodic properties.—Paul Klein, Budapest, Hungary. Canadian patent No. 243,746.

UNWORKED PURE RUBBER SHEETS AND MOLDED ARTICLES. The process consists in electrophoretically precipitating the rubber from latex upon an electrically non-conductive material permeable to

liquids and containing within it the anode. This precipitating surface is separated from the anode by a layer allowing the escape of the gases liberated at the anode and containing an electrolyte which coagulates latex.—Paul Klein, Budapest, Hungary. Canadian patent No. 243,747.

The United Kingdom

IMPREGNATING ASBESTOS, ETC. Asbestos fibers, yarn, fabric, etc., are strengthened and waterproofed by treatment with rubber or like latex with or without the addition of viscous materials such as glue and casein, in such manner that the asbestos fibers are not broken up.—R. Russell, Yaldersgate, Beachwood, Heaton Park, Manchester, and H. Broomfield, 23 Davenport Road, Hazel Grove, Stockport. British patent No. 220,718.

Germany

Patents Issued, With Dates of Issue

404,023 (March 15, 1921). Method of making rubber masses. William Beach Pratt, Wellesley, United States. Represented by G. Benjamin, Berlin, S. W. 11.

B B ACCELERATOR

The B B accelerator was developed by one of the largest American rubber goods manufacturing companies, which is evidence that it is perfectly suited to its work. This accelerator is a liquid of dark color suitable for use in practically any gray or dark compound. It causes an exceptionally rapid rise in tensile, a very flat curing curve, and excellent aging quality. In high grade compounds over 4,000 pounds per square inch tensile is easily obtained.

RUBBER-CARBON BLACK BLENDS

The universal use of carbon blacks in connection with rubber has brought to every rubber plant the problem of how to employ this valuable combination and maintain cleanly conditions in the storeroom and mill room. It simply cannot be done without special facilities, consequently in plants of moderate size, at least, it is more advantageous to eliminate the dirt of black compounding by the use of standard black blends offered by plants that are specially equipped to produce them.

The use of these blends gives a clean-milling batch in less time, a more uniform compound is obtained, there is no loss of gas black, and working conditions in the compounding and milling departments are greatly improved. Rubber and black blends may be made in any proportions of black to rubber desired. Typical, however, of the commercial blends available are the following, known respectively as Denver and M R D. The former consists of 2 parts best ribbed smoked sheets and 1 part of gas black; the latter, of 50 per cent best ribbed smoked sheets, 45 per cent of gas black and 5 per cent mineral rubber.

MOULD AND SPOT PREVENTION

The use of paránitrophenol for the prevention of mould and rust on plantation smoked sheet rubber has been made the subject of study and practical test. Dr. H. P. Stevens, in a report on the subject,[1] states: The results are interesting. The low cost of P. N. P. and the fact that it is easily applied and has no deleterious action on the rubber make it a promising material for mould and spot prevention. It will be noted that for sheet manufacture it has been found better to soak or dip the sheets in the solution rather than add the solution to the latex. Tests on smoked sheet rubber are being undertaken, and the material will be fully investigated. In the meantime, estates are advised not to use the material except experimentally. No recommendation will be made until the behavior of the substance has been thoroughly investigated.

[1] *Bulletin of the Rubber Growers' Association*, September, 1924, 549-552.

Paper Tube Cutter

RUBBER manufacturers who utilize paper tubes in connection with making or packing their products and samples will be interested in a new type of tube cutting machine.

The complete machine is pictured in Figure 1 while the sectional view, Figure 2, illustrates the principle of its mechanism.

The mandrel on which the tubes are cut is rendered flint hard

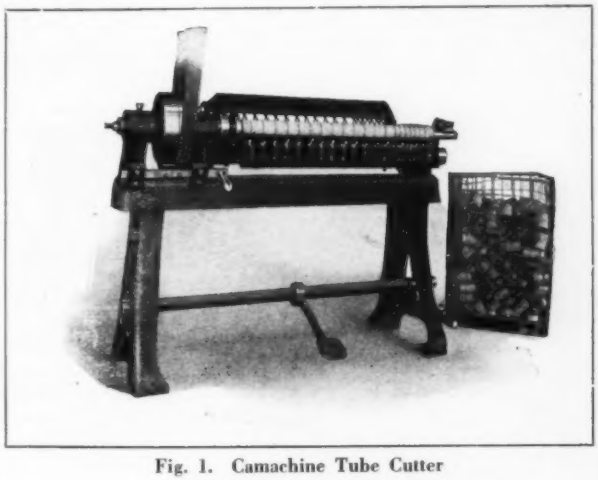


Fig. 1. Camachine Tube Cutter

and as wear resisting as modern heat treatment methods can make it. In other words, it is practically indestructible. Instead of utilizing the little scoring wheels common with machines of old design, the new Camachine tube cutter uses a wheel 3 inches in diameter of special high grade steel heat treated. These wheels are mounted on ball bearings in holders spaced to suit the tube length to be produced. Each holder is spring controlled individually, so that the pressure on the cutting wheels is adjustable to the needs of the work. The mandrel not only remains unharmed after long service, but it need not be of the same diameter as the hole in the tube; in fact, there is quite a wide range of tube sizes which can be cut on the same mandrel.

The most important feature of this machine is that the cut tubes present a practically perfect edge. The outside edge of the tube

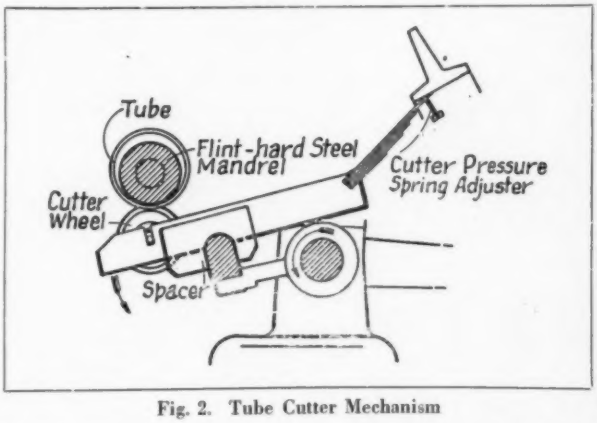


Fig. 2. Tube Cutter Mechanism

at the point where it is cut is clean and smooth; and the inside edge is free of fraying, bulging or any objectionable features whatever. This result appeals most strongly to the practical man, and is especially gratifying because these results can be obtained at less expense of upkeep and with no greater first cost than in the unsatisfactory work of the old style machines.—Cameron Machine Co., 61 Poplar street, Brooklyn, New York.

New Machines and Appliances

Thrust Box for Worm Gearing

A MACHINERY adjunct available in standard sizes as the driving mechanism of machinery for rubber manufacturing and other purposes is the double thrust worm box here pictured. It provides an accurate and rigid support for the worm shaft and holds a liberal supply of oil in which the worm operates. There are

Jones Double Thrust Worm Box

also thrust washers, located at either end of the worm, comprising a center hard fiber washer between two steel washers. The bearings are babbitted and bored and faced at both ends. These boxes are recommended with open worm gear drives when something less expensive than a completely enclosed unit must be used.—W. A. Jones Foundry & Machine Co., 4401-51 West Roosevelt Road, Chicago, Illinois.

Test Sieve for Rubber Ingredients

An interesting new machine adapted for use in checking the fineness of grinding and cleanliness of rubber compounding ingredients is here illustrated.

This test sieve was designed to do by mechanical means that which can not be done satisfactorily by hand labor. This machine not only gives accuracy in sieving and timing but can separate from 2 to 13 size products at a single operation. Sieves with diameters varying from 6 to 10 inches may be used without adjustment.

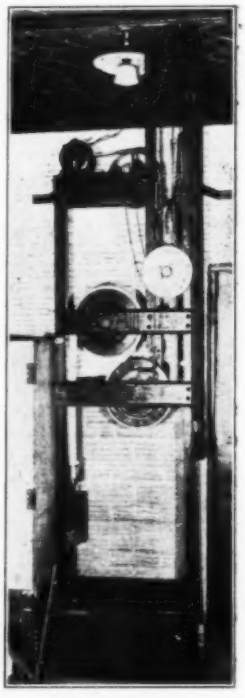
Sturtevant Test Sieve

The machine requires no attention during the sieving operation. By simply setting the time switch the duration of the test is automatically regulated and the machine stops when the predetermined time has elapsed. The machine is equipped ready to run when connected with a light circuit. When electricity is not available, the sieve may be operated equally well by belt from any source of power.

In construction it is massive to withstand rapid and intensive vibrations of minute amplitude. It is instantly accessible for placing and removing any of the sieves within its range. The time switch can be placed in any convenient location, sets like a clock and stops the machine automatically at the end of any desired interval of time.—Sturtevant Mill Co., Harrison Square, Boston, Massachusetts.

Hose Testing Machine

The combination rubber-gasoline hose of automobile service stations is subjected to repeated bending in use which ultimately develops leaks and renders it useless. A new machine recently designed by A. H. Nuckolls, chemical engineer of the Underwriters Laboratories, Chicago, Illinois, is here illustrated.



Hose Tester

This machine does the work formerly done by hand. In conducting the test a 14-pound weight is fastened to one end of the sample and the hose is then pulled up and down 3,000 times over a distance of 4 feet. A counter is provided to record the number of operations of the machine.

The purpose of this test is to show the performance of the hose under conditions similar to those met with in service where repeated bending and straightening of the hose occurs. Any weakness in its structure or the packing at the joints which would cause leakage of gasoline in practice is developed by the test. A rubber-metal hose capable of withstanding this and the additional tests included in the Underwriters Laboratories standard for the class can be depended upon by the user.—Underwriters Laboratories, 207 E. Ohio street, Chicago, Illinois.

Rubber Aging Oven

The importance of testing the aging quality of vulcanized rubber has recently been generally recognized. The need of a suitable apparatus for accelerated aging tests has now been met by the apparatus here illustrated. This is a Freas forced air oven improved and adapted to specifically meet the test requirements of rubber laboratory determinations.

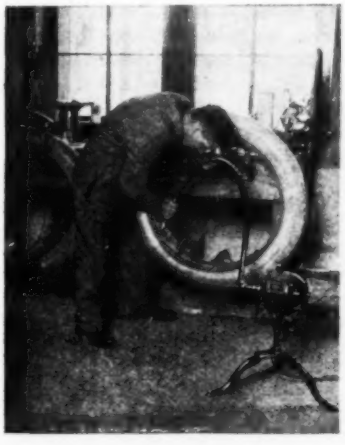
Freas Forced Air Rubber Aging Oven

This oven is equipped with a fan so located as to provide a uniform movement of air past the rubber test specimens. These air currents serve to overcome air pockets, thereby giving a uniform temperature throughout the chamber. A swinging circular shelf is pivoted on the top wall provided with removable clip holders for suspending the samples. The clip holders are so fastened to the shelf that they may be inserted and removed with dispatch and facility.

This apparatus has proved most satisfactory for performing the Geer test and aging under compressed oxygen in bombs.—The Thermo-Electric Instrument Co., Newark, New Jersey.

Portable Buffing Machine

An electric buffing machine which can be moved to the work, or from place to place as convenient, is here illustrated.



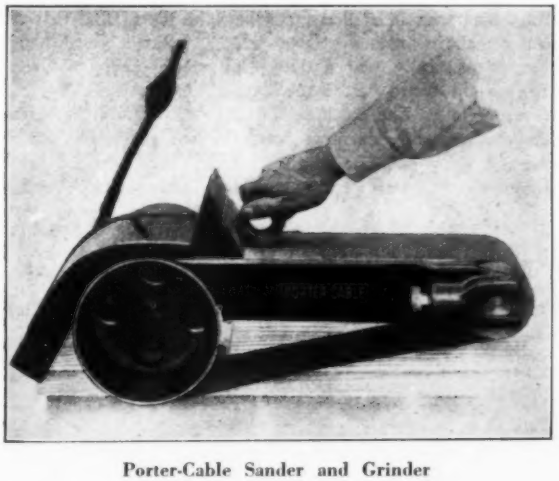
Stewart Electric Buffer

The machine includes a ¼-horsepower motor which swivels a full circle; handle for motor; leather covered flexible shaft four feet long with bronze hand piece. It is equipped with a 4-inch diameter wire buffing brush and 15 feet of electric cord for attachment to any electric light socket.

A special feature of this machine is the Stewart universal cog-driven joint which greatly increases the wear of the shaft and gives 136 degrees of extra flexibility. —Chicago Flexible Shaft Co., Chicago, Illinois.

Belt Sander and Grinder

All molded rubber articles require to be trimmed after vulcanization, and those for mechanical purposes frequently require exact



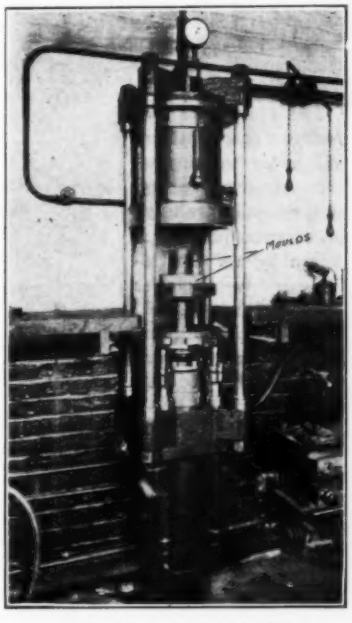
Porter-Cable Sander and Grinder

sizing or truing of angles or surfaces. The belt sander here pictured is well adapted for work on molded rubber goods, for example, valve facing.

The machine is direct connected with a motor, and by adjusting the grinding bed in either a horizontal or vertical position it is made convenient for many different operations and saves the cost of two machines. An adjustable rest and guide is provided for holding the work to be ground. All dust and grindings are conducted away from the work as soon as produced, by passing off to a dust collector through a rectangular duct encasing the driving pulley of the machine.—The Porter-Cable Machine Co., Syracuse, New York.

English Tire Press Vulcanizer

A working model of a new type of press vulcanizer is represented in the accompanying illustration. This is the subject of recent American and British patents.



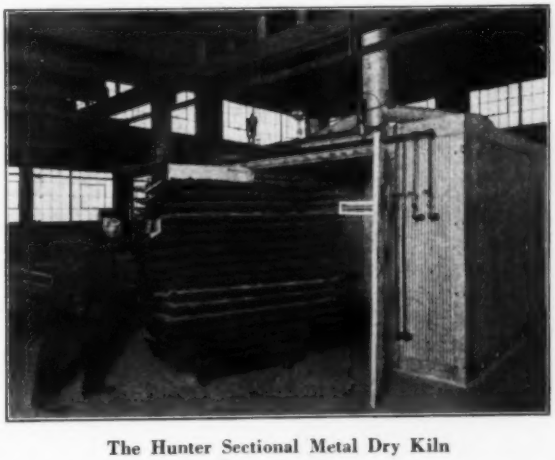
Fletcher Tire Vulcanizer

The special feature of this heater is an arrangement for facilitating handling the molds in and out of the curing pan or chamber. The latter is stationary and inverted so that the mold table is at working level when fully withdrawn from the pan after each curing operation. The mold table, formed as a trolley, can then be run to one side on a track and another table with a new block of molds substituted for the succeeding cure. This is an important practical feature greatly reducing the labor of handling heavy molds and effecting much saving of vulcanizing capacity and curing economy.

Sole manufacturing rights for this vulcanizer and mold equipment are offered by the inventors.—W. W. Fletcher, 58, Lyford Road, Wadsworth Common S. W., London, England.

Automatically Controlled Humidity Drier

The service of thin-walled low pressure or balloon tires is dependent largely upon the strength of adhesion between the plies and their flexibility. Development of the physical properties requisite to these desired properties is best attained by air drying selected rubber under conditions of humidity control. Results by this drying method are notably superior to those possible by ordinary air drying of rubber.



The Hunter Sectional Metal Dry Kiln

A drying unit of the controlled humidity type, here pictured, illustrates the facility with which washed rubber may be trucked in and out of the kiln on wire screens racked on a truck. An

arrangement of this sort allows the drier to be kept practically in continuous operation.—Carrier Engineering Corporation, 750 Frelinghuysen Avenue, Newark, New Jersey.

Motor Driven Tire Buffing Machine

Some form of buffing machine is a very desirable if not essential tool in rubber factory equipment in nearly all divisions of the industry.

Blount Tire Buffing Machine

The illustration represents a new ball-bearing motor driven machine of large capacity. It is exceptionally heavy in construction and is driven by a 7½-horsepower Westinghouse motor operating at 1,800 r.p.m. and controlled by a conveniently located push button. The machine is built with unusually large ball bearings. This feature, in addition to the heavy construction of the spindle shaft and the high carbon steel used, makes unnecessary the use of outer bearings to support the long spindle.

The machine is designed to carry buff wheels 18 inches in diameter with width of face up to 3 inches.—J. G. Blount Co., Everett, Massachusetts.

Machinery Patents

The United States

(1,512,063). METHODS AND APPARATUS FOR TESTING HOSE. This relates to testing short-length hose which is subjected to a considerable fluid pressure when in use, such as air brake and steam hose for railway trains. A means is provided for imparting bending movements to the test pieces while under fluid pressure, simulating the bending movements in actual service, but rapidly repeated so as to obtain an accelerated breakdown test for comparing different constructions and qualities.—John C. Sproull, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,512,063.

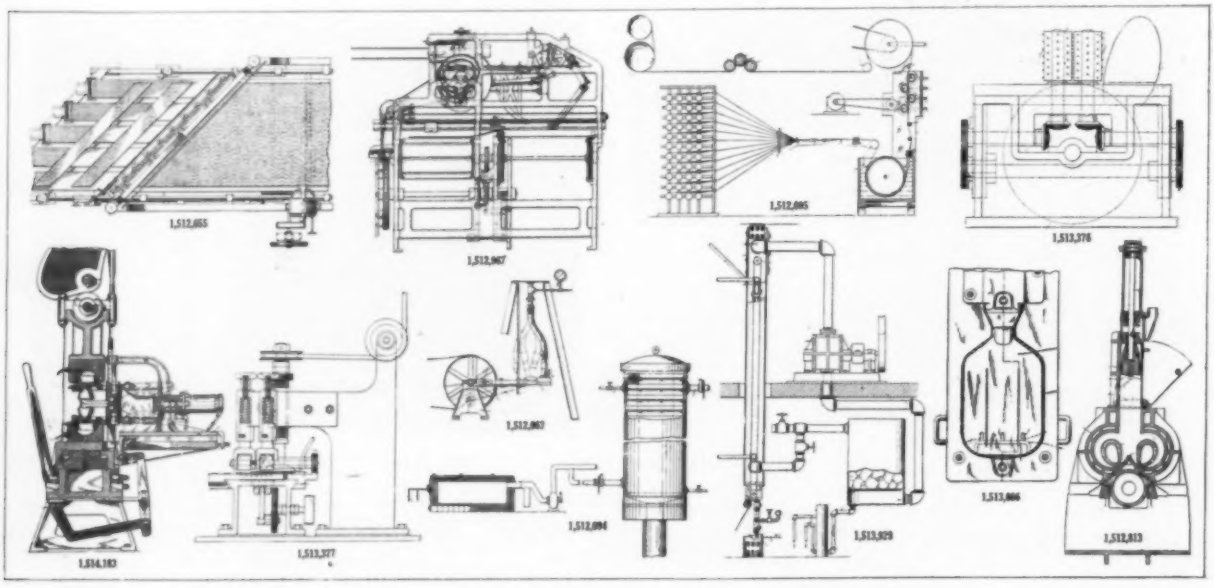
(1,512,094). MANUFACTURE OF TIRE CASINGS. This consists in partially vulcanizing the casings with products of combustion which are supplied to a press containing a stack of loosely assembled molds and tires on cores, thereafter completing the vulcanization with a humid heating medium, such as steam, and with the sections of the mold clamped together under great pressure. Ernest Hopkinson, New York, N. Y. United States patent No. 1,512,094.

(1,512,095). METHOD AND APPARATUS FOR RUBBERIZING FILAMENTARY MATERIAL. The invention consists in applying rubber latex to moving filamentary material, brushing the treated material on one or both faces, and preferably with fast moving warm rolls to form a deposit of rubber in place and in the manufacture of welftless fabric, at least, to join the filamentary elements together with intervening webs of rubber.—Ernest Hopkinson, New York, N. Y., and Kenneth B. Cook, East Orange, New Jersey, assignors to Morgan & Wright, Detroit, Michigan. United States patent No. 1,512,095.

(1,512,655). BIAS CUTTING MACHINE ATTACHMENT. A combination of mechanisms, applicable to either horizontal or vertical bias cutters, by which wide and narrow strips of fabric can be cut in alternation.—Edward J. Van Amburgh, assignor to The Firestone Tire & Rubber Co., both of Akron, Ohio. United States patent No. 1,512,655.

(1,512,813). SAFETY MECHANISM FOR RUBBER MIXING MACHINES. A locking device by which the weight closing the inlet of the working chamber of an enclosed mixer can not drop suddenly while repairs are being made or the operator is cleaning out the casing or attempting to feed in and clear the hopper of stock by pushing it in by hand.—Fernley H. Banbury, Ansonia, assignor to Birmingham Iron Foundry, Derby, both in Connecticut. United States patent No. 1,512,813.

(1,512,967). MACHINE FOR BOOKING SHEET RUBBER STOCK. A machine adapted to operate upon a continuous length of stock as it comes from a calender, provision being made for cutting the stock into sheets, stacking the sheets and delivering them one above another upon a booking board, separator sheets being automatically placed over each stock sheet or layer of sheets on the board before the stacking mechanism delivers the succeeding one. The machine illustrated is adapted to utilize a booking board with separator sheets secured at one end to a rib extending along one side of the booking board, the ends of the separator sheets being spaced to receive the stock sheets be-



tween them.—E. A. Winkley, Lynn, Massachusetts, assignor to United Shoe Machinery Co., Paterson, New Jersey. United States patent No. 1,512,967.

(1,513,086). APPARATUS FOR MAKING HOLLOW ARTICLES. There is provided a mandrel of two or more separable parts which when assembled presents a rigid structure capable of resisting molding pressure yet may be readily disassembled within an article such as a hot water bottle formed with cross tying partitions, and removed in pieces.—R. L. Bruck, Cuyahoga Falls, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,513,086.

(1,513,376). TAP SPLITTING MACHINE. This comprises a series of pairs of rolls arranged to feed a shoe tap along a guiding surface to a rotary cutter which splits the tap along its straight rear edge to admit the subsequent insertion of a tape so that when the tap is nailed to a shoe the nails will not pull out of the tap when the shoe is in use.—J. F. Donnelly and E. S. Johnson, Brockton, assignors, by mesne assignments to Panco Rubber Co., Chelsea, both in Massachusetts. United States patent No. 1,513,376.

(1,513,377). TAP SPLITTING MACHINE. In this patent the machine is designed to horizontal operation of tap splitting rather than vertical operation, as in patent 1,513,376.—J. F. Donnelly and E. S. Johnson, Brockton, assignors, by mesne assignments, to Panco Rubber Co., Chelsea, both in Massachusetts. United States patent No. 1,513,377.

(1,513,928). METHOD AND APPARATUS FOR SOLVENT RECOVERY. A closed-cycle drying and solvent recovery apparatus adapted for the recovery of the vapors of solvent used in rubber solutions for impregnating and coating cord or fabric. The course of the material from the impregnating tank at the base of the drying chamber is upward and then downward in this chamber, while the vaporized solvent mixed with warm air is drawn off at the top by a pump which forces them on to a cooling chamber for recovery by condensation.—George Oenslager and Julian C. Howard, Akron, Ohio, assignors to The B. F. Goodrich Co., New York, N. Y. United States patent No. 1,513,928.

(1,514,183). MACHINE FOR MAKING HOLLOW ARTICLES. This includes a die press for dieing out and uniting the edges of articles, or ball sections, or disks, and comprises stationary and reciprocating die blocks carrying die cavities. For cupping ball blanks a pair of plungers shape the sheet rubber blanks held across the die cavities by clamping rings. An air escape provided in each die block permits the escape of air back of the cupped sheet through a sensitive check valve which prevents reentry of the air and causes the sheet to be held in cupped shape by atmospheric pressure. Before the dies are brought together to trim and join the edges of the cupped blanks together the clamping rings and plungers are withdrawn by automatic mechanism.—Charles W. Steele and Richard T. Griffiths, assignors to The Miller Rubber Co., all of Akron, Ohio. United States patent No. 1,514,183.

Other Machinery Patents

The United States

1,512,096 Process and apparatus for manufacturing weftless fabric. A process and apparatus is provided by which parallel cords webbed together with rubber may be located and fixed any desired distance between centers. Also providing a "standard material" to be supplied to factories and by them altered to give any desired spacing of the cords. Ernest Hopkinson, New York, N. Y.

1,512,108 Tire-building apparatus. C. Kuentzel, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,512,278 Tire casing spreader. L. L. Dickman, College View, Nebraska.

1,514,470 Apparatus for coating fabrics. P. S. Smith, assignor by mesne assignments to O'Bannon Co., both of West Barrington, Rhode Island.

1,515,177 Repair vulcanizer. J. T. Seelye and L. R. Jackson, Pueblo, Colorado.

1,515,475 Method and apparatus for vulcanizing sponge rubber articles. J. O. Goodwin, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

The United Kingdom

221,291 Tire carcass mold. J. Spyker, 1 Sarphatistraat, Amsterdam, Holland.

221,469 Lasting machine for rubber boots and shoes. The B. F. Goodrich Co., New York, N. Y., assignee of F. J. Macdonald, Ellet, Ohio, both in U. S. A.

The Dominion of Canada

242,170 Tire packaging machine. A. J. Gerrard, Chicago, assignee of Leroy F. Hintz, Highland Park, both in Illinois.

244,201 Sole pressing machine. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of R. J. King, East Haven, and R. A. Blake, Milford, both in Connecticut, U. S. A.

Germany

Design Patents Issued With Dates of Issue

882,721 (June 7, 1924). Apparatus for recovering solvent. Ernst Rohlin, Lutherstrasse 15, Berlin.

883,393 (August 26, 1924). Vulcanizing mold of light metal with reinforced parts for making rubber articles. L. Globeck & Fricke, G. m. b. H., Berlin-Weissensee.

883,394 (August 26, 1924). Vulcanizing mold of light metal with reinforced parts for making rubber articles. L. Globeck & Fricke, G. m. b. H., Berlin-Weissensee.

883,395 (August 26, 1924). Vulcanizing mold of light metal with reinforced parts for making rubber articles. L. Globeck & Fricke, G. m. b. H., Berlin-Weissensee.

883,430 (August 1, 1924). Auger for grooved belt. Continental Caoutchouc und Gutta Percha Compagnie, Hannover.

884,008 (June 11, 1924). Vulcanizing press. Friedrich Niemeyer, Hannover-Brink.

884,066 (August 26, 1924). Vulcanizing tongs. Joseph Steinert, Egenolfstrasse 34, Frankfurt-am-Main.

Patents Issued, With Dates of Issue

404,222 (June 2, 1923). Vulcanizing apparatus. The Dunlop Rubber Co., Limited, London: represented by: Dr. R. Wirth, C. Weihe, Dr. H. Weil, M. Wirth, of Frankfurt-am-Main, and T. R. Koehnhorn and E. Noll.

Process Patents

The United States

1,512,094 Method of manufacturing tire casings. E. Hopkinson, New York, N. Y.

1,512,794 Method of tire bead construction. R. C. Pierce, assignor to J. R. Gammeter, both of Akron, Ohio.

1,512,795 Method of tire bead construction. R. C. Pierce, assignor to J. R. Gammeter, both of Akron, Ohio.

1,513,102 Method of molding and vulcanizing pneumatic tire casings. J. R. Gammeter, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,513,434 Method of manufacturing tires. T. Sloper, Devizes, England.

1,513,439 Method of making erasers. C. E. Wickers, Passaic, New Jersey.

1,513,900 Method of reinforcing inner tubes for pneumatic tires. S. D. Flood, Kenilworth, Illinois.

The United Kingdom

218,965 Method of concentrating rubber latex or similar liquid. General Rubber Co., New York, assignee of J. McGavack, Elmhurst, Long Island, both in New York, U. S. A.

220,874 Method of making tubeless pneumatic tires. K. Schragin, 30 Alexanderstrasse, Berlin, Germany.

221,215 Method of making hollow-walled tubes. F. Barme, 27 Königstrasse, Elberfeld, assignee of Kupfer & Kessingwerke, Akt.-Ges., Nierenhof, near Langneberg, Rhineland, all in Germany.

The Dominion of Canada

242,055 Process of waterproofing articles. R. B. Russell, Rhodes, Lancaster, and H. Broomfield, Hazel Grove, near Stockport, Chester, both in England.

244,121 Method of manufacturing weftless fabric. E. Hopkinson, New York, N. Y., U. S. A.

244,384 Process of lining a pulverizing cylinder. The Gutta Percha & Rubber Co., Ltd., assignee of J. H. Coffey, Sr., and J. H. Coffey, Jr., all of Toronto, Ontario, Canada.

Germany

Patents Issued, With Dates of Issue

404,219 (November 17, 1922). Method of making cushion tires by air-cooling. Kuno Tchragin, Alexanderstrasse 30, Berlin.

440,220 (May 21, 1922). Method of filling air cells in a tire. Charles Edmond Veil-Picard, Paris; represented by: Dr. R. Specht, Hamburg.

404,557 (November 4, 1923). Method of making stamped forms of vulcanized rubber. Skandinaviska, Gummiaktiebolaget, Viskafors, Sweden; represented by: W. Zimmerstädt, Berlin S. W. 47.

The Editor's Book Table

Book Reviews

"A. S. T. M. TENTATIVE STANDARDS, 1924." AMERICAN SOciety for Testing Materials, 1315 Spruce street, Philadelphia, Pennsylvania. Paper or cloth, 763 pages, 4¼ by 7 inches. Indexed. Illustrated.

THIS is the annually revised handbook of tentative standard specifications proposed for testing a wide range of materials. The specifications cover (A) ferrous metals, (B) non-ferrous metals, (C) cement, lime and clay products, (D) miscellaneous materials. Many of these are of special interest to rubber manufactures, as follows:

Testing methods for sheet and tape insulating materials for dielectric strength; electrical insulating materials for phase difference (power factory) and dielectric constant at radio frequencies; electrical insulating materials for voltage effects at radio frequencies.

Rubber product specifications for insulated wire and cable, 30 per cent Hevea rubber; steam hose and rubber insulating tape.

Textile material specifications for testing machines; imperfections and tolerances for square woven tire fabrics; imperfections and tolerances for cord tire fabrics; tolerances for hose ducks and belt ducks; tolerances and test methods for cotton yarns, single and plied; tolerances and test methods for electrical cotton yarns, single and plied; cotton sewing threads; and specifications and tests for osnaburg cement sacks. Methods of testing cotton fibers; definitions of terms relating to textile materials and of terms relating to methods of testing.

"NOTES ON THE CRÊPE RUBBER SOLE." ISSUED BY THE Propaganda Department of the Rubber Growers' Association, Inc., 2, 3 and 4 Idol Lane, Eastcheap, London, E. C. 3, England. Paper, illustrated, 6 by 9 inches.

Intended as a supplement to the original handbook published by the association and descriptive of the natural plantation-finished crêpe rubber sole, the present bulletin makes mention of the continued interest in the use of this type of goods, the demand in America, notwithstanding imitations, being estimated for 1924 at approximately 4,000 tons. Sections of interest deal with methods of attaching crêpe rubber soles, methods of marketing crêpe rubber, etc.

"A. S. T. M. STANDARDS, 1924." AMERICAN SOCIETY FOR TESTing Materials, 1315 Spruce Street, Philadelphia, Pennsylvania.

This is the triennial volume of standard specifications and test methods adopted by the society, also recommended practice and standard definitions for certain materials. The contents of the volume are classified in sections, as follows: Ferrous Metals, Non-ferrous Metals, Cement, Lime, Gypsum and Clay Products, Miscellaneous Materials. Among the last named are included specifications relating to insulation, rubber products, and textiles of interest to the rubber manufacturing trade.

LIFE INSURANCE FOR CANFIELD EMPLOYES

The 271 employes of the H. O. Canfield Co., Bridgeport, Connecticut, manufacturer of mechanical rubber goods, have obtained protection in the Metropolitan Life Insurance Co. of New York. The cost of this protection, shared by the employer with the workers, includes a combination life, accident and health insurance program, with supplementary welfare advantages. The policies provide $500 life insurance protection for women employes and $1,000 for men, while the disability clause, furnishing monthly installments in case of the policy holder's permanent disability, represents an important feature.

New Trade Publications

SOME PRACTICAL HINTS REGARDING THE INSTALLATION AND operation of conveyor belting appear in the "Handbook for the Use of Conveyor and Bucket Elevator Belts," as published by The Manhattan Rubber Manufacturing Co., Passaic, New Jersey. Included in this bulletin are some useful statistical tables.

AN ILLUSTRATED BULLETIN ENTITLED "THE RUSSELL U-TUBE Storage Heater" is being sent out by The Griscom-Russell Co., 90 West street, New York, N. Y. One of the important features of this booklet is the preparation of several tables covering the application of a large number of steam pressures as well as initial and final water temperatures. These tables include also complete details of tank sizes, capacities and dimensions for a wide range of storage purposes, while typical examples of heater and tank selection are worked out for various operating requirements.

A LARGE AND ATTRACTIVE CALENDAR, EACH OF THE TWELVE leaves headed by an illustration in color, is being sent out by the National Safety Council, 168 North Michigan avenue, Chicago, Illinois. Useful information regarding first-aid to the injured, antidotes for poisons, fire prevention measures, etc., represents an important part of this calendar.

FOUR BOOKLETS WHICH SHOULD PROVE OF INTEREST TO THE manufacturer, the jobber, the exporter, and the dealer are being published by the Motor and Accessory Manufacturers Association, 250 West 57th street, New York, N. Y. The titles of these bulletins are: "Suggestions for Improved Credit Methods;" "To Help You Get Ready for Better Business;" "How to Take Advantage of the Foreign Trade Opportunity;" and "The Outlook for Better Business." More than a dozen executives connected with well-known industrial organizations have contributed their advice and suggestions in the preparation of these comprehensive publications.

A WELL ILLUSTRATED AND MOST COMPREHENSIVE CATALOG entitled "Floor Operated Electric Hoists" is being issued by the Shepard Electric Crane & Hoist Co., Montour Falls, New York. In this booklet detailed specifications are given regarding each type of hoist manufactured by the company, the catalog as a whole conveying much practical information as well as presenting an attractive appearance.

IN A PUBLICATION ENTITLED "FOREIGN COMMERCE HANDBOOK, 1924-1925," the Foreign Commerce Department of the Chamber of Commerce of the United States has endeavored to set forth the wide range of activities maintained and the facilities available in the United States for the service of the manufacturer, the exporter and importer, and those interested in overseas trade. On the department's advisory board are the names of certain executives well known in the business world.

UNDER THE TITLE "SILVERTOWN BALATA BELTING" SOME useful information regarding one of its products appears in a bulletin published by The India Rubber, Gutta Percha and Telegraph Works Co., Limited (The Silvertown Co.), 106 Cannon street, London, E. C. 4, England. The catalog in question contains not only practical data concerning the installation and use of balata belts, but also in this connection some important tabulations. Among the illustrations are views of the Silvertown Works to-day, with a floor area of approximately 17 acres, as compared with the small plant operated in 1865.

AN UNUSUALLY LARGE AND ATTRACTIVELY PRINTED BULLETIN IS being sent out to distributers connected with The General Tire & Rubber Co., Akron, Ohio. In this publication, entitled "What No Tire Manufacturer Has Ever Done Before," the company reviews its activities during the nine years since its organization,

mentioning also the fact that there has not been a year during this period when the company has failed to make a gain of from 40 to 100 per cent over the developments of the previous year. The company attributes much of its success to its policy of restricting the number of its dealers.

AN ATTRACTIVELY PRINTED PUBLICATION, ILLUSTRATED IN COLOR, and entitled "Mohawk Dealer Advertising for 1925" is being sent out by the Mohawk Rubber Co., Akron, Ohio. In this booklet many kinds of advertising material and dealer helps are described, a particularly interesting feature being the "Mohawk-Hobbs Guides," published for the use of motorists by the company's tourist service department.

A BROADSIDE, REPORTING IN DETAIL THE SPEECHES MADE AT THE recent convention of The Dayton Rubber Manufacturing Co., Dayton, Ohio, and illustrated with photographs of the company's executives, has been recently received. The chief addresses on this occasion were made by John A. MacMillan, president and general manager; G. W. Spahr, general sales manager; A. L. Freedlander, vice-president and factory manager; and Edwin B. Self, advertising manager.

DEALERS ARE RECEIVING A NEW CATALOG ILLUSTRATED IN COLOR and entitled "Goodrich Hi-Press Footwear," the new publication being descriptive of the very full line of goods produced by The B. F. Goodrich Rubber Co., Akron, Ohio.

A BOOKLET OF SIXTEEN PAGES AND CONTAINING MANY PHOTOgraphic representations of the exterior and interior of its new plant is being sent out by E. W. Bliss Co., 53rd street and Second avenue, Brooklyn, New York, manufacturer of hydraulic presses and various kinds of heavy machinery used by the rubber industry. The company's property at the new location extends for almost half a mile and comprises a group of sixteen buildings, having a floor area of 789,000 square feet, the land area being 622,000 square feet.

PRELIMINARY SPECIFICATIONS FOR LIGHT WEIGHT DUCK (ARMY duck), gray, were issued in bulletin form on September 18, 1924, by the Department of Commerce, Bureau of Standards. The reduction of widths and weights of duck from 432 numbers to 83 was recommended in this publication, the reduction becoming effective November 1.

"It is recommended," said the committee report, "that only the simplified list of regular numbers be carried in stock; that specials be made upon order only, in units of not less than 500 yards; and that, as far as possible, the manufacture of specials be restricted to units of 1,500 yards as representing the minimum at which operating efficiency is obtainable."

A WELL ILLUSTRATED BOOKLET, CONTAINING DATA AND STATISTICAL information of considerable value, is being published by the International Acceptance Bank, 31 Pine street, New York, N. Y. The first section of this publication, which is entitled "Three Textile Raw Materials and Their Manufacture," contains an interesting account of the cotton industry.

THE TWELFTH ANNUAL REPORT PREPARED BY HERBERT HOOVER, Secretary of Commerce, reviews comprehensively that executive's varied activities during the past year, the publication being divided into four parts: "Economic Progress"; "Elimination of National Waste"; "Legislative Recommendations"; and "Special and More Detailed Reports of the Different Bureaus and Divisions of the Department and Special Recommendations of Their Directors." Under the latter heading is a résumé of the work accomplished during the year by the Rubber Division, Bureau of Foreign and Domestic Commerce.

THE YEAR BOOK FOR 1924, PREPARED BY THE MERCHANTS' ASSOciation of New York, 233 Broadway, New York, N. Y., reviews that organization's many activities. The association comprises 7,093 individuals or corporations representing all the trades and industries of the city, including some of the leading rubber companies of the country.

Recent Articles Relating to Rubber

Vulcanization and Depolymerization. In view of the fact that there is no relation between the ordinary physical properties of a vulcanizate and its coefficient of vulcanization, whereas the swelling power is a function of this coefficient, the attempt was made by means of measurements of the swelling power to establish a relation between the coefficient of vulcanization and the state of polymerization or depolymerization. The results indicate that the coefficient of vulcanization is no criterion of the physical properties of cured rubber. This is due to the fact that it is a function of the temperature and time of cure, the per cent sulphur and the accelerator. Therefore the relation between this coefficient and the swelling in benzene is valid only in the absence of artificial accelerators. Even with organic accelerators, however, the optimum cure can be determined by the accompanying minimum swelling. At this point polymerization is a maximum compared with the increasing depolymerization.—F. Kirchhof. *Gummi-Zeitung* 38, 237-41 (1924).

Paper Sizing with Rubber Latex. The present state of knowledge of sizing with latex is reviewed. The claims as to the increased strength of paper made with rubber latex and the increased resistance to folding are confirmed. The improvement, however, is not permanent, and the process is at a disadvantage with respect to cost relative to sizing with rosin. Sizing with rubber latex is likely to be of practical importance only for special papers.—C. Fenchel. *Zellstoff und Papier*, 4, 154-158 (1924).

Uses of Raw Rubber. Smoked sheet is more resistant than unsmoked sheet and crêpe on exposure to the atmosphere and this resistance may be increased by dusting the surface with a powder. Raw rubber incorporated with sulphur or antimony sulphide, containing free sulphur, is more resistant than that containing no sulphur. Thus exposure of crêpe containing 4 per cent sulphur for 6 months did not cause tackiness but only a harsh surface; this was due perhaps to solar vulcanization. Incorporation of sulphur in pale crêpe should therefore give a superior crêpe sole. Sulphur, lamp black, antimony sulphide, etc., can be incorporated on the crêpeing rolls to obtain various effects, without detriment to the quality. In automobiles, the rusting and perforation of mudguards can be prevented by thin sheets of raw rubber, and raw rubber has been used as inner tubes and as an extra thin tread on tires.—B. J. Eaton and J. H. Dennett. *Malay Agricultural Journal*, 12, 142-3 (1924).

Photopolymerization of Vinyl Chloride and the Rubber Problem. Illustrated. German. The synthesis of ethylene rubber.—Joh Plotnikow. *Zeitschrift für Wissenschaftliche Photographie*, 21, 117-133 (1922).

Hexamethylene-tetramine Poisoning in the Rubber Industry. In rubber manufacture Hexa. is dispersed through the rubber during the mixing process in 0.1 per cent strength, where it acts as a catalyzer in the reaction between sulphur and the rubber in the process of vulcanization. In the present case it was used only in tube and heel stock and the worst cases of poisoning came from the heel room where crude heels were placed in molds which are inserted in hot hydraulic presses. When the vulcanization period was over, the molds were removed and the hot smoking heels were knocked out of the molds by the workmen. The symptoms of poisoning were redness of the face and exposed parts of the arms, followed by itching vesicles and edema. Extreme itching was the prominent symptom. In many cases indolent deep infections followed. Use of other catalyzers and the avoidance of scrap rubber containing Hexa. are necessary to avoid the poisoning.—H. J. Cronin. *Journal American Medical Association*, 83, 250-1 (1924).

The Constitution of Rubber. A theory of the structure of rubber is proposed which explains more adequately than the solvation theory its physical properties in the solid state and in solution.—J. Duclaux. *Revue Générale des Colloides*, 1, 33-9 (1923).

Preservation of Rubber Latex by Ammonia. The amount of acetic acid required for complete coagulation of preserved latex was far in excess of that required to coagulate the same quantity of fresh latex and to neutralize the ammonia present, and was roughly proportional to the amount of ammonia used for preservation. There was no definite evidence of deterioration of the rubber due to the use of the preservative, although the tensile strength was irregular.—*Bulletin of the Imperial Institute*, 22, 136-41 (1924).

Collection of Rubber in East India, and the Physiological Significance of Rubber in the Plant. Serial. The cultivation of Hevea trees in Java, the mode of collecting the latex, its treatment in preparing the commercial forms of crude rubber, and vulcanization, are described. The yield of latex depends on structural characters, that is, the number of the ducts, and probably may be increased by proper selective cultivation. Various diseases are discussed, notably the "brown bast disease" caused by too frequent tapping. The exact origin of rubber in the plant is still unknown. It is a respiratory excretion, proved in some cases to protect the tree against insects. A list of 33 references is given.—W. Vischer. *Schweizerische Apotheker Zeitung*, 62, 353-5, 369-75, 389-90, 425-31 (1924).

Vulcanization and Accelerators. Part I. Theory of Vulcanization. Serial. History of vulcanization and discussion of chemical theories of the process. Introduction to the author's theory.—André Dubosc. *Rubber Age*, New York, October 25, 1924, 51-53.

Sulphur. A paper read before a meeting of the London and District Section of the Institution of the Rubber Industry, October 6, 1924. Discussion of the forms of sulphur, its solubility in rubber, action in vulcanization, theories of vulcanization, and phenomenon of blooming.—Edward Anderson, F. I. C. *Rubber Age*, London, November, 1924, 455-62.

Rubber Latex Paper. Discussion of question of durability. Tables of test data.—Frederick Kaye. *Rubber Age*, London, November, 1924, 469-71.

New Synthetic Colloid. Production and Properties of Pollopas or organic glass, a condensation product of urea and formaldehyde.—Dr. Fritz Pollak and Dr. Kurt Ripper. Translated by Carl Marx. *Chemical Age*, October, 1924, 409-412.

Experimental Work on Yield of Latex, Number of Latex Vessel Rows and Girth. Results suggest that these two characters have a considerable bearing on yield. It is advisable in making a final selection for propagation purposes to take into account yield, constitution of cortex, and girth measurement at 20 inches height.—H. Sutcliffe and A. R. Sanderson. *Bulletin of the Rubber Growers' Association*, September, 1924, 552-554.

Paranitrophenol as a Mold Preventive. Reports by H. C. Pinching and H. P. Stevens.—*Bulletin of the Rubber Growers' Association*, September, 1924, 545-552.

Preparation of Sole Crêpe. Details of machinery, processes and product, followed by discussion.—W. Carver. *Bulletin of the Rubber Growers' Association, September*, 1924, 516-523.

Some Common Defects in Prepared Plantation Rubber and Their Prevention. Lecture by H. C. Pinching at the Incorporated Society of Planters' Conference, held at Kuala Lumpur, July 12, 1924.—*Bulletin of Rubber Growers' Association*, September, 1924, 538-544.

The New Method of Vulcanization and Acceleration. I.—André Dubosc. *Le Caoutchouc et la Gutta Percha*, October 15, 1924, 12,382-12,384. Graph.

Manufacture of Rubberized Fabrics. II.—D. Noblué. Formulæ for balloon fabric. *Le Caoutchouc et la Gutta Percha*, October 15, 1924, 12,391-12,393.

DURING 1921 ESTHONIA IMPORTED 90 LONG TONS OF RUBBER FOOTwear, and in 1922, 111 tons. The value of the latter purchase was 24,274,550 Esthonian marks, or $71,396. In 1922, 340 of these marks were equal to a dollar.

Rubber Trade Inquiries

The inquiries that follow have already been answered; nevertheless they are of interest not only in showing the needs of the trade, but because of the possibility that additional information may be furnished by those who read them. The Editor is therefore glad to have those interested communicate with him.

(495) From Texas comes a request for addresses of reclaimers in the middle western or southwestern states and for names of crude rubber brokers nearer than Chicago.

(496) Prospective cushion tire manufacturer desires to get in touch with some one having a special process or device for applying such tires to rims.

(497) We are asked for information on the cutting of pure gum sheet rubber into strips.

(498) Inquiry is made for a source of supply of Witherite, natural barium carbonate (BA CO_3).

(499) We are asked where rubber flowers may be purchased in small quantities.

(500) Subscriber asks for addresses of firms who deal in fabric pulled from inside old or adjusted tires.

(501) Inquirer desires to get in touch with manufacturer of transparent rubber nipples for nursing bottles.

(502) Subscriber asks for address of manufacturers of rubber air mattresses.

Foreign Trade Opportunities

Address and information concerning the inquiries listed below will be supplied to our readers through the Foreign Trade Bureau of The India Rubber World, 25 West 45th Street, New York, N. Y. Requests for each address should be on a separate sheet and state number.

NUMBER	COUNTRY AND COMMODITY	PURCHASE OR AGENCY
12,021	Egypt—Grey cotton sheeting	Agency
12,055	Denmark—Toy balloons	Agency
12,067	Paraguay—Heels for women's shoes	Purchase and agency
12,152	England—Rubber matting for automobiles	Agency
12,179	Argentina—Rubber heels	Agency
12,181	Belgium—Tan and black rubber heels and soles	Purchase
12,182	France—Used tires, cords and fabric	Agency
12,183	Rumania—Flexible steam hose	Purchase
12,184	Switzerland—Rubber toys to be used in advertising	Purchase and agency
12,246	Germany—Heels and soles; best grade	Agency
12,295	Austria—Rubber shoes, galoshes, bathing shoes, gloves, tires, and hard rubber	Agency
12,296	Egypt—Rubber heels, shaped and revolving	Agency
12,297	Peru—Household rubber goods	Agency
12,306	Paraguay—Rubber goods, especially footwear	Agency

FOREIGN RUBBER TRADE INFORMATION

Special circulars containing foreign rubber trade information are now being published by the Rubber Division, Bureau of Foreign and Domestic Commerce, Washington, D. C. The publications which give details of the rubber industry in some one country are marked with an asterisk.

NUMBER	SPECIAL CIRCULAR
*644	"Market for Rubber Heels in Wurtemberg and Baden."
*645	"Constantinople Tire Market."
646	"Canadian Exports of Tires and Tubes," etc., etc.
*649	"Retail Tire Prices in United Kingdom."
*650	"Selling Tires in Great Britain."
*651	"Dealers' Stocks of Automobile Tires on October 1, 1924."
652	"Tire Market of Victoria, British Columbia," etc., etc.
*653	"Trade in Water Bottles and Syringes in Dublin, Ireland."
*655	"Market for Rubber Specialties in Sao Paulo."
*656	"Tire Exhibits at the Paris Automobile Show of 1924."
*657	"Retail Tire Prices in Poland."
*658	"Market for Belting in British Malaya."
659	"Tire Market of Matanzas, Cuba," etc., etc.
*661	"Trade in Water Bottles and Syringes in Valetta, Malta."
*663	"Market for Rubberized Tapes in Australia."
*664	"Market for Rubber Specialties in Italy."
665	"Market for Packing in San Luis Potosi, Mexico," etc., etc.
668	"Market for Rubber Belting in Tientsin, China," etc., etc.
669	"Tire Market of Santo Domingo, D. R.," etc., etc.
673	"Market for Rubber Footwear in Mexico City, Mexico," etc., etc.
*675	"Retail Tire Prices in Norway."
*676	"Retail Tire Prices in Switzerland."
*678	"Market for Men's and Women's Belts in Bombay."
*679	"Retail Tire Prices in Brazil."
*680	"Retail Tire Prices in Venezuela."
*681	"Retail Tire Prices in Peru."
682	"Market for Rubber Footwear in Lisbon, Portugal," etc., etc.

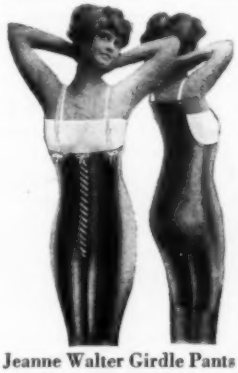
New Goods and Specialties

Rubber Horseshoes for Pitching Game

THE ever popular game of pitching horseshoes has been brought up to date and made adaptable for indoor sport by the use of rubber horseshoes of regulation size and having a heavy wire insert in each shoe as a stabilizer. The game consists of two metal circles 11⅜ inches in diameter, lithographed with circles and "brownies," which give it its name. There are two nickel plated center posts, one for each of the metal circles. These are placed any desired distance apart and each player pitches two shoes to a stake. Each game is packed in an attractive box on which are printed the rules of the game. There are two dozen boxes to a case; shipping weight 60 pounds to the case. —The M. H. Miller Co., Jeannette, Pennsylvania.

Rubber Reducing Girdle Pants

The manufacturer of the rubber girdle pants pictured states that this is only one of a number of rubber reducing garments which the firm has been manufacturing for many years. The recent vogue of the straight silhouette and the widespread recognition of the quick reducing effect of the rubber garment has called forth new designs, however, and the one shown here is particularly favored because it not only reduces at one time the limbs, hips, abdomen and waistline but also the particularly hated accumulations of fat back of the shoulders. The garment may be had in knee length or ankle length and may be extended to include the bust. The opening in front may be made to fasten with snap-buttons or laces and the material may be either light or dark-colored Pará rubber gum.—Jeanne Walter, Inc., 389 Fifth avenue, New York, N. Y.



Jeanne Walter Girdle Pants

Rubber Quoit with Air Vents

The "Tenikoit" illustrated is a hollow rubber quoit with air vents which insure just the right degree of flexibility. It is used in the game of deck tennis, which may be played indoors or out or anywhere a tiny court may be marked off, as for lawn tennis. A net is employed but instead of the tennis ball and racket the tenikoit is used and is tossed back and forth according to standardized rules and regulations.—Clove T. Shaffer, 560 Sutter street, San Francisco, California.

Rubber "Tenikoit"

A Musical Toy Balloon

One of the newest developments in the line of toy balloons is the "Jingeloon," which is made of finest quality rubber in assorted colors and also in gold and silver finish, each one containing a tiny bell which tinkles musically at the slightest movement of the balloon. The combination of brilliant color with the attention-compelling jingle makes this a live advertising medium as well as a popular premium. An attractive counter display consists of an assortment of three dozen heavy weight balloons (70cm) with sticks.—Deubener's Shopping Bag, St. Paul, Minnesota.

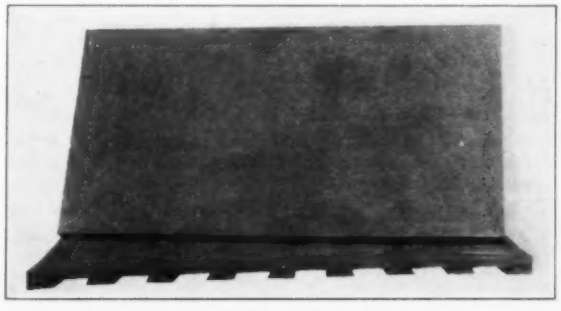
The "Jingeloon"

The Toy Balloon as Peace Propaganda

The inflated toy is leaving its nursery days far behind. Not only has it proved a feature in the advertising field, but it has had a part in the recent political campaign and now it even invades the lecture platform of the diplomats. A recent Viennese design is in the shape of a pompous military figure which is supposed to represent War. A breath will inflate it to formidable proportions, but when deflated it presents a grotesque appearance indicative of futility and despair.

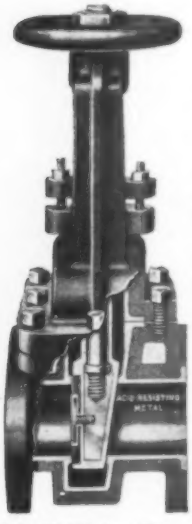
Rubber Blocks for Marking Safety Zones

A new molded rubber product of much value and interest has recently been developed for the purpose of marking safety zones on streets. It can be used in connection with either asphalt or concrete paving. The blocks are about six inches wide and from three quarters to one inch thick depending on the pavement in which they are to be applied. These blocks are at present being tested in Akron. The under surface of the block is dovetailed to afford a grip to the cement used in imbedding it on the foundation of the pavement. The construction of these blocks is here shown. If the Akron tests prove satisfactory these rubber markers will be available for use throughout the country to replace the paint now in general use and which lasts only a brief time under traffic conditions.—The B. F. Goodrich Co., Akron, Ohio.



Safety Zone Marker Block

Wedge Type Gate Valve with Rubber Disk



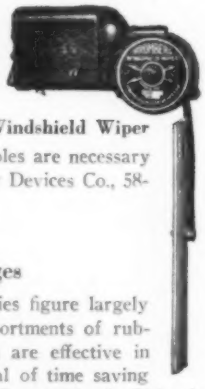
"United" Wedge Type Gate Valve

The "United" chemical hard lead-lined wedge type gate pattern flanged acid valve illustrated was especially designed for work where a valve that is practically drip-proof is necessary. To insure this feature a chemical hard lead disk recessed on the wet side to take a rubber disk is employed. The yielding quality of the rubber gives assurance of a positively tight closing of the valve, with all friction or abrasive action eliminated.—United Lead Co., 11 Broadway, New York, N. Y.

"Airtite" Decoy Ducks

The Airtite Decoy Co., Danville, Illinois, is marketing a decoy duck with an inner tube shaped for its particular species and made of the best gum rubber. The outer covering is of strong fabric, lithographed. The under side of the duck is provided with a 5-inch lacing for convenience in removing the inner tube. The cork is attached to the tail with durable cord and brass screw-eyes. The manufacturers state that every decoy is thoroughly tested before leaving the factory and is guaranteed.

Electrical Windshield Wiper with Rubber Squeegee



Windshield Wiper

The working parts of the windshield wiper illustrated are manufactured close to limits and are practically noiseless in operation. They are direct connected to the storage battery and controlled by a positive switch specially devised so that it is easy to find in the dark. Only two holes are necessary for the installation.—The Stromberg Motor Devices Co., 58-68 East 25th street, Chicago, Illinois.

"Faultless" Gift Packages

A plan to make druggists' rubber sundries figure largely in Christmas giving provides different assortments of rubber goods in attractive gift boxes, which are effective in window displays and have the added appeal of time saving for the shopper. The Faultless Rubber Co., Ashland, Ohio, is offering four different assortments, three of which retail at $5 and one at $2. One particularly attractive assortment includes the company's finest hot water bottle, a fudge apron of popular design and dainty colors, a helmet-shaped bathing cap of the new "Wonder" stock, and a rubber sponge, each item being boxed separately, so that the package may be given as one gift or divided to make several.

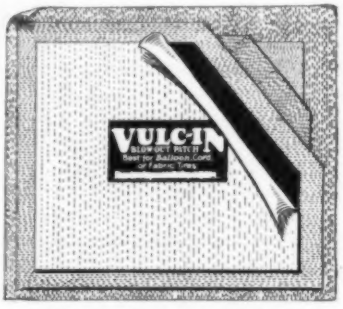
"Rolo" Rubber-Tired Toys

One of the toy novelties of the season which is finding a ready market is the "Rolo" animal. Dogs, cats, and bears are made up of fuzzy, deep-pile plush and just the size for a child to tuck under his arm as he starts for a walk. The feature of these toys lies in the rubber-tired wheels which are so constructed and applied that when a slight pressure and push are given the toy will run along for 125 feet or more. The secret is concealed in the rear wheel.—Knickerbocker Doll Co., Inc., 269 Canal street, New York, N. Y.

The "Sanisink" Cleaner

A practical aid for the housewife, on which a patent is pending, is the "Sanisink" cleaner. It consists of a wedge-shaped piece of molded brown rubber about two inches wide, with the thicker edge fastened securely into a smooth, round wooden handle. The thin edge is the "business" one for cleaning sinks. This device is sold in five-and-ten-cent stores.—Home Utilities Manufacturing Co., New York, N. Y.

Blow-Out Patch for Balloon Tires



Self-Vulcanizing Blow-Out Patch

The distinctive feature of "Vulc-In," the blow-out patch here illustrated, is that it is made of raw rubber and is therefore soft, pliable, and easily conformed to the contour of any casing. The manufacturer claims that it is constructed entirely by hand, of new material with a tensile strength of 1,116 pounds to the square inch and is not a temporary but a permanent repair insuring from 500 to 1,000 additional tire miles. It has a special cement surface of live rubber approximately 6 by 7 inches and protected by a linen cover. This surface is self-adhering, no wings or other fastening means being required, since it is self-vulcanized to the fabric casing and thus seals the blow-out and excludes all dirt, gravel or water. Dealers need stock only one size patch for balloon, cord or fabric tires.—Crescent Rubber Products Co., 501-505 East Church street, Champaign, Illinois.

Automatic Tubing-less Internal Bath

Davol "E.C." Internal Bath

The simplicity of the mechanical parts and the automatic action of the "self-administering internal bath" appliance illustrated are its distinctive features. It is built like a 4-quart hot water bottle of high quality rubber and is filled in the same manner as the hot water bottle. In one side of the bag is a detachable water-tight metal cap. When this is removed and the fountain appliance with rectal tip substituted the hot water bag is converted into an "internal bath." No tubing is required, for in use the bag is laid flat on the chair. The weight of the body upon it automatically "turns on" the water, and rising from a sitting posture "turns it off," no shut-off handle being required.—Davol Rubber Co., Providence, Rhode Island.

THE DAVIDSON RUBBER CO., P. O. BOX 48, BOSTON, MASSACHUSETTS, is offering to dealers an assortment case containing 23 flat goods items, fountain syringes, hot water bottles and combination syringes and water bottles, at a price low enough to stimulate a demand for their Banner Brand "Velvet" rubber goods, which the manufacturer claims give utmost serviceability and satisfaction at prices which anyone can afford to pay.

Liquid Rubber Tire Cut Filler

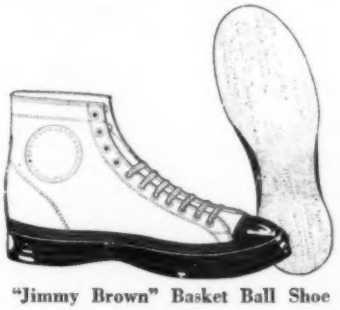
The Dutch Brand "2-in-1" cut filler is a preparation for filling cuts and gouges in tire casings and combines the properties and usefulness of cement with that of a filler. It is

Tube of 2-in-1 Cut Filler

marketed in a tube with a nozzle point which is inserted in the cut after all dirt has been cleaned out and the wound scraped with a knife and washed with gasoline. The 2-in-1 filler is squirted into the cut and worked into every part of it. Then the surface is smoothed over with the knife and left to dry thoroughly. The manufacturers claim that this easy, quick repair adds hundreds of miles of tire service.—Van Cleef Bros., Woodlawn avenue at 77th street, Chicago, Illinois.

Applying the Filler to a Casing

Leather-Topped Snag-Proof Basket Ball Shoe



"Jimmy Brown" Basket Ball Shoe

The combination of a leather top, a heavy foxing strip of frictioned and coated canvas fastened to it with three double rows of stitching, and an outsole of pure Pará rubber vulcanized to the foxing makes the "Jimmy Brown" basket ball shoe shown in the illustration extremely light and flexible and at the same time capable of withstanding the hardest wear of professional play. Carrying the stitched foxing idea still further, the manufacturers have constructed another model with a heavy canvas upper and a tongue and toe of leather.—Lambertville Rubber Co., Lambertville, New Jersey.

Gaiter with New Style Adjustable Fastening

A combination of style features and storm resisting ability makes the gaiter illustrated an excellent example of the season's offering in this line. The special claim to distinction in this model is the dome fastener which snaps into an adjustable buckle, thus insuring a snug fit over any size ankle and leg. The straps have turned, stitched edges, so that they will not fray and the neat appearance is preserved indefinitely. This galosh is made up in several lasts and may be had in jersey cloth or cashmerette.—Gutta Percha Rubber Co., Ltd., Toronto, Ontario, Canada.

New "Gutta Percha" Galosh

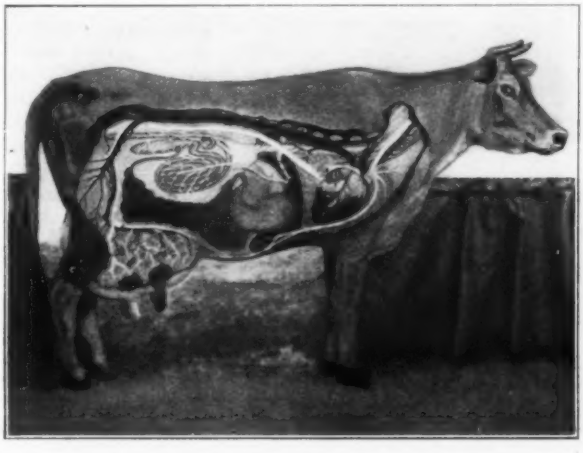
Temporary "High Chair" for Children

The simple camp-chair device with rubber-covered hooks, shown in the illustration, is designed to do away with the ordinary high chair for children's use at table. It can be folded up and tucked out of sight in a convenient closet or corner when not in use and is offered not only as a boon to small apartment dwellers but also to hotel and restaurant keepers to solve the problem of accommodating transient children guests at table. The rubber-covered hooks fit over any size chair and convert it at once into a "high chair."—Herkimer Specialties Corporation, Cold Brook, New York.

Auxiliary Chair for Children

Rubber Aids in Dairy Exhibit

At a recent National Dairy Show the United States Department of Agriculture gave an interesting exhibit showing how feed proteins which the dairy cow assimilates are converted into milk proteins for the use of human beings. The larger veins and



Improvised Rubber Circulatory System

arteries of the life-size model of a cow which was used were of translucent rubber tubing and the heart was improvised from a hot-water bottle. The pulsations were provided by means of a double-acting pump, which sent a red fluid coursing through the system in a realistic manner.

ONE OF THE RUBBER NOVELTIES OF THE SEASON IS A SCARF PIN, in the form of a black rubber face attached to which is a length of rubber tubing of small diameter. At the end of the tubing is a bulb which when pressed causes the caricature not only to stick out its tongue but to whistle a tune. The novelty is called "Whistling Jim" and is marketed by the Franco-American Novelty Co., 1383 Broadway, New York, N. Y.

Rubber and Steel Hydraulic Gates[1]

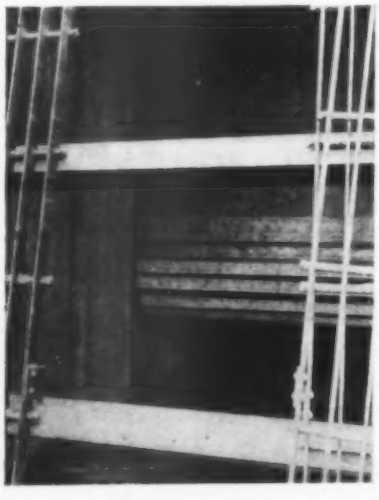
Rubber in Important Hydro-Electric Development—Rubber-Steel Gates Control Turbine Water Flow—Rubber Insures Gates Against Deterioration During Long Service Period

A NOVEL type of inlet gate has been installed for controlling the flow of water to the turbines at the plant of the Moreau Manufacturing Co., Glens Falls, New York. Instead of using the old style rigid gate of steel and timber, operated by rack and pinion, the designers of this gate, A. H. White, chief engineer, and Edward Hutchins, assistant engineer of the International Paper Co., conceived the novel idea of building a flexible inlet gate of steel and rubber which can be rolled up or down as the operation of the plant demands.

The rubber element supplies the necessary flexibility and acts as a water seal, while the steel members hold the gate in shape and carry the water pressure when the gates are closed. Particular care was taken not only to meet the mechanical requirements of the installation but to provide high grade rubber material which would resist the action of moisture and insure the gates against deterioration during a long period of service.

The assembling of the gates was performed in the field. The rubber lap strips were first riveted to the I beams and the latter assembled in proper position on an erecting floor. The diaphragms and center strips were then laid on the beams and attached by means of special 5/8-inch by 1 7/8-inch bronze bolts with slotted heads for screwdriver operation. Under the head of the bolt was placed a 1¾-inch by 3/16-inch bronze washer and under the bronze hex nut a tapered washer of hard lead. Before inserting the bolts all holes were given a second coat of rubber cement. The nuts were held in place by means of a special wrench and the bolts tightened up with an electric drill fitted with a screwdriver bit.

On the end I beams of each gate two triangular rings were riveted as attachments for the suspension and operating chains. The latter lead from the attachments on the upper I beam to steel framing placed eight feet above the powerhouse floor while the operating chains, fastened to the lower attachments, lead over



There has recently been completed a hydro-electric power development of more than passing interest because of the novel type of inlet gate used for controlling the flow of water to the turbines. The illustration on the left shows the gate open, and on the right it is closed.

There are five wheels at the Glens Falls plant, the water to each of which is controlled by three gates, each with a net opening 10 feet 4 inches by 13 feet 9 inches. The rubber diaphragm for each gate is made in two sections each 5 feet 9 inches wide by 17 feet 2-3/16 inches long. These sections are made similar to conveyor belting and consist of 8 plies of heavy frictioned belting duck vulcanized together and the whole protected by a high grade rubber cover 1/16-inch thick on both sides and edges. The sections are placed edge to edge, giving a width of 11 feet 6 inches. The longitudinal joint is covered with a rubber strip 4¾ inches wide by 1/16-inch thick. The sections are then punched to template to correspond with the punching in 32 six-inch I steel beams and the holes given a coat of rubber cement to protect the cut duck plies from the entrance of water in service. Rubber lap strips of 4¾-inch, 4-ply rubber covered belting were riveted to the outside face of each beam in such position as to overlap the adjacent beam and prevent the entrance of trash of any kind during operation of the gate.

[1] Data and illustrations supplied by The Manhattan Rubber Manufacturing Co., Passaic, New Jersey.

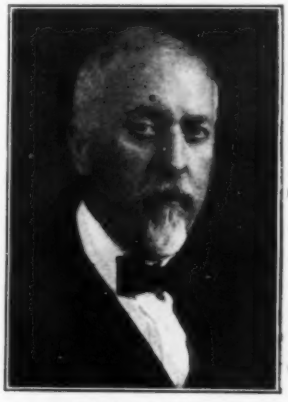
head sheaves to insure alinement and then over 15-ton double chain blocks which are engaged by the powerhouse crane when operating the gates. In the loop of the gate is suspended a floating hollow concrete roller 11 feet 4 inches long by 30 inches outside diameter. This roller has open ends and its 5-inch concrete wall provides sufficient weight to hold the gate in position, while the 30-inch diameter insures a proper bending radius and prevents kinking. When the gate is in the closed position the I beams fit into a 6-inch recess in the concrete side walls, while the rubber diaphragms lap over the face of the offset. The bottom I beam is faced with rubber and is held against the sill by the weight of the concrete roller. This construction makes the gates practically watertight. The soundness of the design has been fully demonstrated under service conditions for several months.

AUSTRALIA'S IMPORTS OF RUBBER MANUFACTURED GOODS TOTALED for the fiscal year ended June 30, 1923, £1,841,641, the value for the succeeding twelve months rising to £2,477,063. Notwithstanding local production, imported tire casings are evidently still retaining their hold on the Australian market.

The Obituary Record

Prominent in Massachusetts Footwear Trade

CHARLES A. COE, for many years eastern selling agent of footwear for the United States Rubber Co., with headquarters in Boston, Massachusetts, died in October from the effects of a gun-shot wound. While hunting he fell and his gun was discharged, wounding him in the knee. He died soon afterward from hemorrhage and shock.



Charles A. Coe

Charles Alanson Coe was born in Madison, New York, September 25, 1853, where his education in the public schools began. His family went West in 1865 as far as Bloomington, Illinois, where he was first employed in a mill in 1867. In 1871 he secured a position with the wholesale boot and shoe firm of R. P. Smith & Son in that town.

In 1878 he moved to Omaha, Nebraska, where for seventeen years he was engaged in the wholesale boot, shoe and rubber business, first as a member of the firm of Reed, Jones & Co., later Kirkendale, Jones & Co. In 1889 he started in business as Charles A. Coe & Co., the firm name presently being changed to Morse-Coe Shoe Co.

Mr. Coe moved to Boston, Massachusetts, in 1895, and for a year did special work for the United States Rubber Co. The following year as Charles A. Coe & Co. he took the selling agency of the American Rubber Co., Cambridge, Massachusetts, for the New England states and built up a large trade.

In 1902 he was appointed eastern selling agent of footwear for the United States Rubber Co., which position he held until December 1, 1922, when he retired from active business at his own request, aged 69.

In "Charlie" Coe, the rubber industry possessed a very individual and interesting character, of a type fast passing. He was aggressive, fearless and frankly friendly. Full of optimism, bluff and hearty, he made hosts of friends. A rather unusual and altogether commendable quality was his openly expressed praise of absent friends. It delighted him to tell in detail of the good luck or successful accomplishment of friend or acquaintance, often of competitors.

Mr. Coe was a capable business man, active and enterprising. His genial personality won for him many friends, who wished him many years of pleasant leisure following his retirement and to whom his sudden death came as a great shock. He was one of the original members of the New England Rubber Club, and as chairman of the dinner committee for several years became equally well known to the members of its larger successor, the Rubber Association of America. He was prominent in Masonic orders and his clubs included the Boot and Shoe and Algonquin clubs, Boston; New York Athletic Club; and the Fort Schuyler Club, Utica, New York.

New England Manager of the Rubberset Co.

Austin Goodyear Brown, New England manager of the Rubberset Co., 14 High street, Boston, died November 3 at the Massachusetts General Hospital, where he had been a patient for seven weeks. He had been connected with the Rubberset Co. for 14 years. Previous to that he was for two years treasurer of the Asahel Wheeler Co., dealers in paints and oils at 58 High street.

Mr. Brown was a native of New York, a son of Thomas Gibbons Brown, head of the well-known jewelry manufacturing concern of Thomas G. Brown & Sons. He is survived by his widow and a brother, Albert D. Brown. Mr. Brown had a summer home at North Scituate. He lived at the Parker House during the last two winters.

Widely Known Rubber Mill Systematizer

James Wright Cary, mill room authority and time study expert, died September 3, 1924, in his seventy-first year, of an old heart trouble aggravated by pneumonia in the winter of 1923. His death occurred on the *S. S. Finland* while in the Caribbean Sea en route to Los Angeles, California, via the Panama Canal. The full Masonic burial service was conducted by twenty-seven Masons on board ship just before reaching Colon, Panama.

James Wright Cary

James Wright Cary was born in Springville, New York, October 18, 1853. He was educated in the public schools of Freeport, Illinois, and Todd Academy.

His business career began in Chicago banks, where he continued until 1899, when he went to the Merigold Co. of that city as the systematizer in charge of a subdivision department. From 1892 until 1895 he was connected with the Depew Improvement Co. and the Model City Development Co., both in New York state.

Mr. Cary was a cousin of Fred W. Morgan, of Morgan & Wright, Chicago, Illinois, and through that relationship became connected with the rubber industry in which he was engaged during the remainder of his life. His first work was systematizing the office of Morgan & Wright, then some departments, following which he was made assistant superintendent and then superintendent of the factory until the merger of this firm with the United States Rubber Co.

He then went to the Alden Rubber Co., Barberton, Ohio, as assistant superintendent, and about 1902 to the Boston Woven Hose & Rubber Co., Cambridge, Massachusetts. Later he was mill room foreman for the Revere Rubber Co., Chelsea, Massachusetts, and the Safety Insulated Wire Co., Bayonne, New Jersey. He then did systematizing work successfully for the Habirshaw Wire Co., Yonkers, New York, the Diamond Tire & Rubber Co., and the Firestone Tire & Rubber Co., both in Akron, Ohio.

During the last seven years of his life he was in the employ of the United States Rubber Co. in its mill room, central planning and footwear departments. He was also an instructor in time study in the firm's foremen's course. He is survived by his widow, who resides at Point Loma, California.

Few men have had such an extensive and varied experience in the manufacturing end of the rubber industry, and few men's services as a rubber mill systematizer have been in greater demand. As his time permitted he wrote technical articles on timely practical subjects which were widely read with much interest as published in THE INDIA RUBBER WORLD.

A marked characteristic of Mr. Cary's was his studiousness. From the first, as apprentice, foreman, superintendent, he sought

out the literature of rubber and made its knowledge his own. He was thus one of the first to appreciate the trend toward efficiency in manufacture through the training of foremen and worker. As instructor in these lines he showed remarkable aptitude, as he was not only tactful and patient, but having come up from the ranks was able to understand the mental attitude of the members of his classes.

President of L. K. Rittenhouse

Louis K. Rittenhouse, president of the L. K. Rittenhouse Rubber Co., 229 Central avenue, Newark, New Jersey, was shot and fatally wounded by bandits in front of his home, 300 Oakwood avenue, Orange, New Jersey, on October 27. He died later in the Orange Memorial Hospital.

Prior to starting his own company in Newark, Mr. Rittenhouse was for a number of years district manager for the Firestone Tire & Rubber Co. in New York and Boston and later in Newark. He started in the rubber industry with the old Diamond Tire Co. and later became affiliated with The B. F. Goodrich Co. on the amalgamation of the two and served as a district manager in Detroit and St. Louis. The deceased is survived by his wife and mother. He was a member of the Newark Athletic club.

President Brass Goods Manufacturing Co.

On October 31 Herbert Ogden Hyatt, for the past nineteen years president of the Brass Goods Manufacturing Co., 341 Eldert street, Brooklyn, New York, died at his home in Amityville, Long Island. Mr. Hyatt was born in Brooklyn, December 13, 1859, and had resided there the greater part of his life. As a youth he became connected with the Brass Goods Manufacturing Co., manufacturer of special fittings used in the rubber industry, and, actively identified with that organization for the past forty years, was instrumental in furthering its advancement.

At the time of his death he was a member of the Amityville Yacht Club. He is survived by his widow; a son, Herbert Ogden Hyatt, Jr.; a brother, Frank S. Hyatt, vice-president and secretary of the Brass Goods Manufacturing Co.; and two sisters.

Goodrich Tire Salesman

Horace Schwartz, a tire salesman who lived in Perth Amboy, New Jersey, was instantly killed November 10 when struck by an automobile in front of the Stelton Inn, near New Brunswick, New Jersey. He had been employed by The B. F. Goodrich Co. for some time.

Interesting Letters from Our Readers

Ford Plants Rubber Vines

TO THE EDITOR:

DEAR SIR: About the first of last June it was reported that Henry Ford had purchased the 7,000 acre Goodno ranch near La Belle, Florida, and the further news has since been published that Henry Ford and Harvey Firestone have undertaken to prove that rubber can be produced on a commercial scale in the United States. On a recent visit to Florida I was informed by Dr. David Fairchild, director of the Bureau of Plant Introduction, Department of Agriculture, that the plant which they have selected is *Cryptostegia grandiflora* as the direct outcome of the experimental work which I have done since 1910 in trying to demonstrate the possibilities of this plant.

In THE INDIA RUBBER WORLD, May 1, 1911, I published an article on the occurrence of Cryptostegia in Mexico, and since then I have directly or through the aid of friends had the plant grown in nearly every State of Mexico, in British Honduras, the Bahamas, the other islands of the West Indies; in Jhalawar, Gwalior, Karnal (Punjab) and other districts in India; in Uganda and other African colonies. I have conducted prolonged and extended experiments to determine variations in yield in different conditions of soil, seasonal variations in yield, the best methods of extracting and refining the rubber; the value and best methods of utilizing the by-products, etc.; with the result that I am more confident of the commercial value of Cryptostegia than I was in 1910.

In my experiments I have had the valuable assistance and advice of the experts in the laboratories of the Imperial Institute, the Commercial Intelligence Branch of the Board of Trade, and the chemical laboratories of Messrs. Cross and Bevan in London, the Bureau of Plant Industry, the National Research Council, the laboratories of the United States Rubber Co., and the Continental Mexican Rubber Co. in the U. S. and Mexico. The criticisms and advice of the above, together with hundreds of extractions and tests which I made here and in London and Mexico City, have thrown much light on this variety of rubber and the methods best adapted to its production.

There will be no difficulty about growing Cryptostegia in Southern Florida, but the crucial test will come when large quantities of the vine are to be made to yield the highest possible percentage of rubber. Success will perhaps depend more largely upon the treatment of the freshly cut vine than on any other detail, since rubber is a polymerization product and the percentage of rubber obtained will vary greatly with the method of treating the stem cuttings.

In view of the interest which is certain to be aroused by the establishment of a plantation of Cryptostegia by Ford and Firestone I feel that it is desirable that you as the Editor of the leading journal devoted to the rubber industry should be fully informed as to the initial stages of the undertaking.

DR. CHARLES S. DOLLEY.

Scientific Research Laboratories, Nassau, New Providence, Bahamas, B. W. I.

Wheels Within Wheels

TO THE EDITOR:

DEAR SIR: It is apparent to many how closely the automotive and rubber manufacturing industries are allied, but what has not received so much consideration is the outstanding fact that so long as motor cars burn gasoline and run on rubber tires, all three of these great industries—oil with an invested capital of $9,000,000,000; the automotive industry with nearly $3,000,000,000; and rubber manufacturing employing nearly $1,000,000,000; aggregating approximately $13,000,000,000 of American capital—are dependent largely on cultivated rubber for existence.

Yet America, with this tremendous capital involved and consuming over 70 per cent of the world's production of plantation rubber, owns less than 3 per cent of the planted acreage in this key industry. The British control, either financially or politically, more than 75 per cent of the output of plantation rubber, the development of which has been due to their vision, pluck and energy.

By their control of this basic industry, the British have the power to close our automobile plants and rubber factories and to depress the price of oil securities. Without plantation rubber the bottom would fall out of these three industries. Startling but true!

However, we are fortunate that the control of this important key industry rests in the hands of a nation which fundamentally desires to "play the game" and which realizes that its well-being depends upon the prosperity and good-will of the rest of the world.

INTERNATIONAL.

Three Generations of Rubber Men

The Tyers of Andover

EVER since that revolutionary period of the rubber goods manufacturing industry which followed the discovery of vulcanization the name of Tyer has been prominent in American rubber annals. It early took and has since maintained high place among the rubber firms of Massachusetts, and today the third generation of the family is actively identified with the company bearing its name, now grown to considerable size and variety of product.

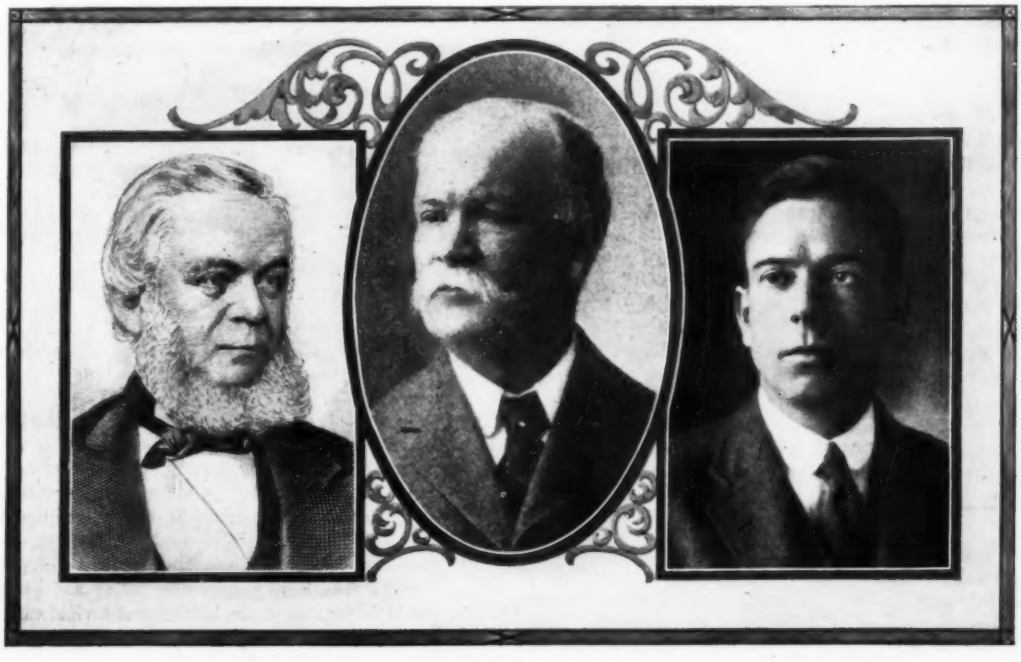
Henry George Tyer

Henry George Tyer, founder of the Tyer Rubber Co., Andover, Massachusetts, and one of the pioneers of the American rubber trade, was born in Hackney, London, England, February 23, 1812. His boyhood and youth were spent in the land of his birth, and he received a liberal education, as befitted his station in life. When the rubber business was in its infancy he became much interested in it, and coming to this country settled in New Brunswick, New Jersey, where he connected himself with Horace H. Day. With a factory at his disposal he at once began to investigate, experiment and to invent. He was of the greatest advantage to Mr. Day, superintending his factory, evolving new means of working the stubborn gum that was then but little understood, and by his knowledge of business laws helping his partner in his famous lawsuits against Charles Goodyear.

Mr. Tyer, although the born English gentleman, was truly American in his sympathies and in his fertility of invention. Of course many of his discoveries have been superseded, but a number still survive to make his reputation enduring. One of his first patents was a process for cutting rubber thread (patented in 1844 and again in 1845) that was very successful. Soon after this, his attention being called to the faults of the old-fashioned white compounds, he began to experiment with oxide of zinc, and in a little time had succeeded in making a beautiful and durable white rubber. A patent for this was granted him January 30, 1849, which was reissued August 7 of the same year. Engrossed by other experiments and the cares of business, he did not value this very highly and sold it for an inconsiderable amount. When the time for the extension of the patent arrived he did not take pains to notify the patent office in time, and therefore the extension was lost to him. Very soon after this white rubber began to be recognized as of great value in the manufacture of druggists' sundries, and although Mr. Tyer was one of the most successful manufacturers of goods of this kind, he did not reap the full reward that in all justice was due him as its inventor.

In March, 1855, he invented and patented a process for making a shoe which was known as a "Compo" shoe, and which the next year he began to manufacture, locating his factory in Ballardvale, Massachusetts. He coined the word "Compo" to get rid of the ceaseless questionings of those who wished to know what the goods were made of.

His attention being called to the fact that at that time much of the goring made by rubber thread processes was defective, he began to work upon a fabric that should be free from such faults. He took out two patents in 1855 and one in 1856 for a Congress shoe goring made without rubber threads that was known as "Diagonal Woolen Goring" and which met with instant favor. The only feature about the invention that prevented the general introduction of the goods was the high cost of production. A year later Mr. Tyer patented the well-known Congress arctic overshoe, using the diagonal woolen goring unvulcanized in its manufacture. This patent he sold to the Wales-Goodyear Co., of Naugatuck, Connecticut, which was extremely successful in



Henry George Tyer Horace H. Tyer Henry G. Tyer, Jr.

introducing the arctic very widely. Mr. Tyer, using machinery that he himself designed, manufactured the goring at his Massachusetts factory and shipped it to Connecticut in the roll, where it was cut into strips, incorporated in the shoe and vulcanized with it.

In 1866 he began the manufacture of druggists' rubber goods in Andover, Massachusetts, under his own name. Ten years later he organized the Tyer Rubber Co., of which he was the president.

Mr. Tyer was a man of dignified presence, with an old school courtesy pervading word and deed; was a delightful raconteur, and a prince among entertainers. Although conservative in business, he was always willing to examine anything new in his line, and if he did not adopt it, often by suggestion and recommendation helped on to success what otherwise might have been complete failure. He died in Andover in July, 1880.

Horace H. Tyer

Horace H. Tyer, son of Henry George Tyer, the founder of the Tyer Rubber Co., was born in New Brunswick, New Jersey, in 1844, at the time when his father was engaged in business there with Horace H. Day. Indeed, the son was christened Horace H. Day Tyer, although he never used the full name.

By 1856 Henry George Tyer, the father, had begun the manufacture of rubber goods, first in Ballardvale, Massachusetts, and later moved to Andover nearby. Here his son Horace attended Phillips Andover Academy, and on his graduation at once entered his father's factory to learn the business. On the death of his father in 1880 he became treasurer of the company, and in 1882 was elected to the presidency, which office he filled up to the time of his own death on October 4, 1907. He was survived by his wife, formerly Miss Katherine L. Buss, of Medford, Massachusetts, two daughters, and a son, Henry G. Tyer, Jr.

Conservative, naturally reserved, and lacking the pioneer spirit of his father, Horace H. Tyer was not widely known in the rubber trade, but those who did know him fully appreciated his sterling, wholesome, lovable character. He never shirked public duties, and in a quiet unostentatious way proved himself a friend to scores and was ever a champion of the right in town and business affairs.

He was a director of the Andover National Bank, trustee of the Andover Savings Bank, trustee of the Punchard Free School, president of the Andover Press, and senior warden of Christ Episcopal Church.

Henry G. Tyer, Jr.

Henry G. Tyer, Jr., son of Horace H. Tyer, and now vice-president of the Tyer Rubber Co., was born in Andover, Massachusetts, on February 5, 1885. He was educated in the public schools of Andover and at Phillips Andover Academy, from which institution he was graduated in 1903. He then entered Harvard University, from which he was graduated with an A. B. degree in 1907.

His first connection with the Tyer Rubber Co. began in the fall of 1906, while his father was president of the company, and so he enjoyed business relations with his father until the latter's death in October, 1907. During the first few years he worked as a mill hand in various manufacturing departments, and then went into the selling end of the business, with which he is still associated.

For several years he was manager of his firm's Boston office, and has been in charge of its export business since 1910. He has taken particular interest in export trade, having made a considerable study of foreign conditions in the course of about a dozen trips to various parts of Latin America. He also looks after domestic sales of certain lines and has traveled extensively throughout most sections of this country.

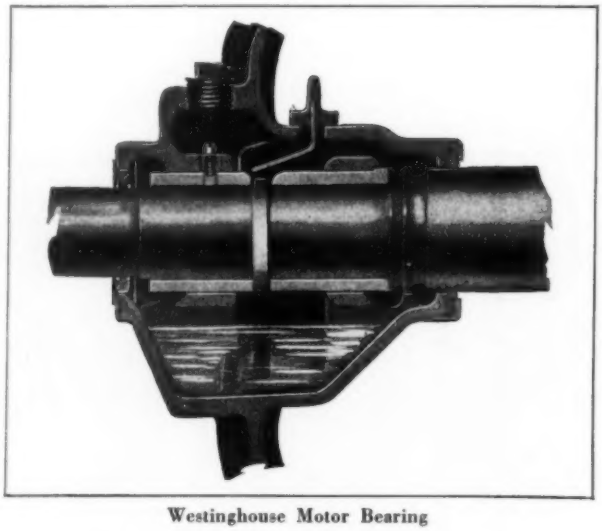
As the World War progressed he felt that he should do something more in the service of his country, and in 1918, while president of his company, entered the Artillery Officers' Training School at Camp Taylor, Kentucky.

Mr. Tyer was married in 1919 and has two daughters. He enjoys and cultivates most outdoor sports. His home is located on the outer edge of Andover, about three miles from the factory, where he takes great pleasure as a hobby in truck gardening to a limited extent. His clubs include the Harvard Clubs of Boston and New York, and the North Andover Country Club.

SEALED SLEEVE MOTOR BEARING

The illustration of a new design of sealed sleeve motor bearing shows how effectively this bearing is sealed against the entrance of air or dust and prevents the leakage of oil or oily vapor into the motor.

A connecting passage in the upper part of the bearing housing secures a condition of balanced air pressure in the separate chambers into which the housing is divided by the bearing supports. The action of the blower at high speeds sets up a vacuum next to the inside end of the housing, and since it is impossible to seal the housing absolutely at that point because the shaft passes out there, the vacuum is communicated to the space within the housing itself.



Westinghouse Motor Bearing

For inspection of the oil ring, a large airtight threaded pipe plug is provided. An enclosed combination filling and overflow opening is placed in the side of the bearing and a rigid cast iron cover is bolted over the oil ring slot and made airtight by an oil-proof packing.

By absolutely preventing oil leakage, the sealed sleeve bearing prevents weakening of the motor insulation by the lubricating oil and the resultant grounds and short circuits, which frequently result in delays and expensive repairs.—Westinghouse Electric & Manufacturing Co., East Pittsburgh, Pennsylvania.

CIRCULAR RUBBER KNIVES

For cutting rubber, leather, paper, cork, etc., circular knives are made of high grade alloy crucible tool steel specially tempered for the work to be performed. These are ground with edges beveled on one or both sides, according to the material to be cut and other working conditions. The principal applications of such knives in rubber work are in slicing crude rubber, trimming overflow from molded articles, and cross-cutting tubed stock for molding, etc.—Hunter Saw & Machine Co., Pittsburgh, Pennsylvania.

Activities of the Rubber Association of America

September Production, Inventory and Shipments of Tires

Compared with production, there is a decline in the September shipments of both high pressure cord and balloon casings, and balloon and high pressure inner tubes, although shipments for the month exceed production in the case of fabric casings and solid and cushion tires. Both shipment and production, however, of cord casings, solid and cushion tires and high pressure inner tubes show increases over those for September, 1923. The amount of crude rubber consumed in the manufacture of these goods, including balloon tires and tubes, totaled for September 43,920,689 pounds, as compared with 40,384,738 pounds for the previous month, which had represented the high figure for the year.

An increase in the September inventory is noted for all classes of goods mentioned, with the exception of fabric casings and solid and cushion tires. Estimates based on September figures show 2.1 months' supply of balloon casings on hand, and 2.4 months' supply of balloon inner tubes. A satisfactory lessening as compared with September, 1923, is evident, however, in the inventories following, the 1923 figures being placed first: high pressure cord casings, 3,733,734 and 2,731,376; fabric casings, 1,663,823 and 942,599; high pressure inner tubes, 6,457,455 and 5,153,778; and solid and cushion tires, 249,379 and 179,927.

Combined shipments during September of high pressure cord and fabric tires totaled 3,005,915 as compared with 3,757,542 for the month previous, and 2,672,555 in September, 1923. The corresponding September production of these casings amounted to 3,051,123 against 2,733,575 in August, and 2,029,581 in September of last year. Shipments during September of high pressure inner tubes totaled 4,823,039, compared with 5,250,579 in August and 3,724,724 in September, 1923, while September production stood at 5,039,594 as against 4,588,385 in August, and 3,254,575 in September, 1923. There were 41,711 solid and 12,395 cushion tires produced in September, shipments of these goods during that month totaling 48,345 and 11,234 respectively. The consumption by the American industry of crude rubber for casings, tubes, and solid and cushion tires has reached a total during the first nine months of 1924 of 329,031,780 pounds.

INVENTORY—PRODUCTION—DOMESTIC AND FOREIGN SHIPMENTS OF PNEUMATIC CASINGS—INNER TUBES—SOLID TIRES

	Pneumatic Casings				Inner Tubes				Solid and Cushion Tires			
	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments	No. Mfrs. Reporting	Inventory	Production	Shipments
Twelve months, 1922	..	58,401,086	30,698,139	29,221,899	..	72,463,938	38,137,181	36,656,435	..	2,320,650	786,603	688,845
Twelve months, 1923	..	67,448,419	33,933,936	32,991,810	..	87,807,770	45,128,083	43,554,963	..	3,013,674	692,148	690,090
1924												
January	56	4,808,084	3,220,292	2,838,570	51	6,720,247	3,887,959	3,542,500	10	182,782	53,604	47,295
February	55	5,265,133	3,278,674	2,866,626	50	7,339,307	4,067,631	3,397,668	10	188,519	60,646	52,965
March	57	5,763,084	3,427,692	2,990,872	53	8,157,704	4,218,950	3,500,105	10	203,608	68,662	61,482
April	60	6,164,226	3,307,478	3,013,441	54	8,627,343	4,035,242	3,586,279	10	212,419	69,534	58,486
May	58	6,331,193	3,038,586	2,769,970	53	8,761,812	3,744,108	3,648,490	10	219,538	63,901	60,267
June	55	6,155,537	2,629,742	2,753,143	51	8,166,158	3,493,431	3,964,609	10	212,704	50,887	58,716
July	52	5,138,474	2,552,329	3,561,110	49	6,634,022	3,857,289	5,392,253	10	202,850	42,498	51,449
August	52	4,477,016	3,234,741	4,193,114	48	5,758,310	5,015,687	5,619,914	9	183,159	52,516	60,684
September	56	4,524,405	3,530,878	3,404,239	51	6,038,868	5,506,442	5,186,804	10	179,927	54,106	59,583

"Production" and "Shipment" figures cover the entire month for which each report is made. "Inventory" is reported as of the last day of each month.

"Inventory" includes tires and tubes constituting domestic stock in factory and in transit to, or at, warehouses, branches (if any), or in possession of dealers on consignment basis, and, as a total represents all tires and tubes still owned by manufacturers as a domestic stock.

"Shipment" prior to January, 1924, includes only stock forwarded to a purchaser and not stock forwarded to warehouse, branch, on consignment basis, or abroad. After January, 1924, shipments abroad are included in these figures.

Statistics Compiled from 1924 Questionnaire Covering the Third Quarter of 1924 [1]

During the third quarter of the present year the total amount of crude rubber used by the American industry in the manufacture of all its products is estimated at 75,432 tons, value $242,565,000, as compared with the record for the previous three months of 68,107 tons, value $208,294,000. A total of 64,525 tons of crude rubber was used during the September quarter in the manufacture of tires and sundries, the value of such shipments being estimated at $170,603,000. Tube shipments were valued at $25,549,000 for the quarter as against $18,814,000 for the quarter preceding, the amount of crude rubber used during the two periods being 13,848 tons and 10,473 tons, respectively.

Solid tire production during the third quarter accounted for 3,913 tons, value $7,457,000, while 847 tons of crude rubber, value $4,051,000, were consumed in the production of tire sundries and repair materials. In making motorcycle and bicycle tire equipment 211 tons of crude rubber were utilized, the value of the quarter's shipments amounting to a total of $1,000,000.

Inventories at the end of the quarter totaled 49,645 long tons of crude, of which 37,725 tons were in the hands of manufacturers and 11,920 tons stored by importers and dealers. There were, at the conclusion of the quarter, 50,760 long tons of crude afloat consigned to the United States. Of this total 14,353 tons were being shipped to manufacturers and 36,407 to importers and dealers.

	Long Tons		
Reclaimed Rubber	Inventory at End of Quarter	Production	Shipments
Reclaimers solely (7)	3,110	9,865	10,274
Manufacturers who also reclaim (19)	2,999	6,813	4,957
Other manufacturers (45)	1,511	.....	.....
Totals	7,620	16,678	15,231

	Long Tons		
Scrap Rubber	Inventory at End of Quarter	Consumption in Manufacture Reclaimed	Due on Contract at End of Contract
Reclaimers solely (7)	29,621	12,697	8,828
Manufacturers who also reclaim (19)	6,488	9,801	6,091
Other manufacturers (45)	1,027	.....	.....
Totals	37,136	22,498	14,919

NUMBER OF TONS OF CRUDE RUBBER CONSUMED IN THE MANUFACTURE OF RUBBER PRODUCTS AND TOTAL SALES VALUE OF SHIPMENTS OF MANUFACTURED RUBBER PRODUCTS

Product	Number of Tons of Crude Rubber Used	Total Sales Value of Shipments of Manufactured Rubber Products
Tires and Tire Sundries:		
Automobile and motor truck pneumatic casings	45,617	$132,316,000
Automobile and motor truck pneumatic tubes	13,848	25,549,000
Motorcycle tires (casings and tubes)	83	375,000
Bicycle tires (single tubes, casings and tubes)	128	625,000
All other pneumatic casings and tubes not elsewhere specified	14	104,000
Solid tires for molded vehicles	3,913	7,457,000
All other solid tires	75	126,000
Tire sundries and repair materials	847	4,051,000
Totals	64,525	$170,603,000
Other Rubber Products:		
Mechanical rubber goods	3,337	$16,000,000
Boots and shoes	2,559	29,219,000
Insulating wire and insulating compounds	673	7,360,000
Druggists' sundries, medical and surgical rubber goods	544	3,207,000
Waterproof cloth, clothing and rubber sheeting	710	4,890,000
Hard rubber goods	575	2,243,000
Heels and soles	1,317	5,229,000
Miscellaneous, not included in any of above items	1,192	3,814,000
Totals	10,907	$71,962,000
Grand total—all products	75,432	$242,565,000

INVENTORY OF CRUDE RUBBER IN THE UNITED STATES AND AFLOAT FOR UNITED STATES PORTS

	Long Tons			
On Hand	Plantation	Pará	All Other	Totals
Manufacturers	34,067	2,606	1,052	37,725
Importers and dealers	11,076	727	117	11,920
Totals on hand	45,143	3,333	1,169	49,645
	Long Tons			
Afloat	Plantation	Pará	All Other	Totals
Manufacturers	14,064	289	....	14,353
Importers and dealers	34,677	1,397	333	36,407
Total afloat	48,741	1,686	333	50,760

[1] Number of rubber manufacturers that reported data was 216, crude rubber importers and dealers 37; reclaimers (solely) 7; total daily average number of employes on basis of July, 1924, was 130,718.

It is estimated that the crude rubber consumption figures are 90 per cent of the total and the crude rubber inventory 95 per cent of the total for the entire industry.

News of the American Rubber Trade

Rubber Industry Outlook

THE rubber industry, in common with all other lines, is inspired with confidence that an era of prosperity is assured as a result of the recent national election. Immediate uplift is noted in the stimulus apparent in general manufacturing lines, transportation, merchandising and building construction, all of which react in requiring rubber goods in increasing volume.

Freight movement is on a maximum scale and railways are purchasing heavily in rolling stock, signal equipment, and various construction projects involving the use of rubber goods and other products.

Automobile tire production is keeping pace with the demand, which is holding up well due to continuance of good motoring conditions and good volume of car production. The large tire companies are manufacturing tires and tubes at nearly or quite 90 per cent of capacity output and this rate is scheduled for the balance of the year, which will bring the total output of the year to about 47,000,000 tires. Some fear has been expressed that production may exceed demand by too great a margin but the current demand and survey of dealers' stocks indicate otherwise.

Balloon tires figure more largely as equipment for 1925 motor cars than for replacement and are being made at the rate of about 500,000 monthly.

Rubber footwear and mechanical rubber goods factories are operating under increased volume of orders, the former on seasonal goods and the latter for general industrial, railway and numerous mechanical purposes.

Similar encouraging conditions are noted in other important divisions of rubber manufacturing including automobile topping, heels, proofing, hard rubber, druggists' sundries, and novelties.

New York Stock Exchange Quotations

November 22, 1924

	High	Low	Last
Ajax Rubber, com	10⅛	9	9
Fisk Rubber, com	11¾	9⅞	11½
Fisk Rubber, 1st pfd	77¼	74	75
Goodrich, The B. F., Co., com	34⅛	32	32⅜
Goodrich, The B. F., Co., pfd. (7)	89¾	88¼	88½
Goodyear Tire & Rubber, pfd	79¾	77¾	79¼
Goodyear Tire & Rubber, pr. pfd (8)	104⅞	103½	104½
Kelly-Springfield Tire, com	17½	16	16
Kelly-Springfield Tire, pfd	49	49	49
Keystone Tire & Rubber, com	1⅞	1⅝	1⅝
Lee Rubber & Tire, com	10¾	9⅞	10¼
United States Rubber, com	38⅞	36	36½
United States Rubber, 1st pfd	91¾	89	90⅛

Akron Rubber Stocks

AKRON

	High	Low
American Rubber & Tire, common	10	10
American Rubber & Tire, preferred	30	30
Amazon Rubber	2⅛	2⅛
Goodyear, preferred	81	72
India Rubber, common	110	100
India Rubber, preferred	85	85
Mason Tire & Rubber, common	1¾	1¾
Mason Tire & Rubber, preferred	22	19
Mohawk Rubber, common	18	14
Mohawk Rubber, preferred	70	60
Seiberling Rubber, common	10½	8¾
Seiberling Rubber, preferred	85	70
Swinehart Tire & Rubber, preferred	50	50

CLEVELAND

Firestone, common	90	88
Firestone, preferred (6)	98	96
Firestone, preferred (7)	93	92½
General Tire & Rubber, common	235	234
General Tire & Rubber, preferred	96½	96½
Miller Rubber, common	95	92
Miller Rubber, preferred	104½	100
Swinehart Tire & Rubber, common	20	20

Dividends Declared

COMPANY	STOCK	RATE	PAYABLE	STOCK OF RECORD
Boston Woven Hose & Rubber Co.	Com.	$1.50	Dec. 15	Dec. 1
Boston Woven Hose & Rubber Co.	Pfd.	$3.00	Dec. 15	Dec. 1
Converse Rubber Shoe Co.	7% Pfd.	$3.50 s. a.	Dec. 1	Nov. 15
Firestone Tire & Rubber Co.	7% Pfd.	1¾ % q.	Nov. 15	Nov. 1
Miller Rubber Co.	Pfd.	2% q.	Dec. 1	Nov. 10
Miller Rubber Co.	Acc.	1%	Dec. 1	Nov. 10
Servus Rubber Co.	7% Pfd.	3½ % s. a.	Nov. 1	Oct. 1

New Incorporations

Baxter Rubber Glove Corp., October 10 (New Jersey), $30,000. Incorporators: Charles E. Baxter, Sr., 29 Vernon avenue, Newark, Frederick G. Turck, 295 Greylock Parkway, and Charles W. Leebel, 302 Greylock Parkway, both of Belleville, and all of New Jersey. Principal office, 61 Belle avenue, Belleville, New Jersey. To manufacture and deal in rubber goods of every class and description.

Bernstein Brothers, Inc., October 10 (New Jersey), $100,000. Incorporators: Joseph J. Bernstein, 147 Lafayette street; Harry M. Bernstein, 415 East 28th street; Abraham Bernstein, 258 Harrison street; Benjamin Bernstein, Max Bernstein and Louis Bernstein all of 147 Lafayette street, and Jacob L. Bernstein, 5 Colt street, all of Paterson, New Jersey. Principal office, 5 Colt street, Paterson, New Jersey. To buy and trade in belting and power transmission of every description.

Frank & Scott Co., Inc., November 13 (New York), $10,000. Incorporators: Harry Frank, 510 Bedford avenue; Chas. Fischer, 110 Division avenue, both of Brooklyn, and Charles Reilly, 710 Riverside Drive, New York City, all of New York. Principal office, Manhattan. To manufacture tires and rubber goods.

Gould Storage Battery Co., Inc., October 11 (New York), common authorized $250,000; outstanding $250,000 par value $100. Charles A. Gould, president and treasurer; William S. Gould, vice-president; Charles A. Gould, 2nd secretary, and W. A. J. Barrington, assistant treasurer. Principal office, 30 East 42nd street, New York, N. Y. To sell storage batteries for all purposes.

Heatless Dental Rubber Corp., November 7 (New York), $5,000. Incorporators: Charles Herman; Marcus Herman and Hyman Jacobs, all of 152 West 42d street, New York, N. Y. Principal office, Manhattan. To manufacture rubber goods.

Hope Tire Co., of Rhode Island, October 20 (Rhode Island), $50,000. Incorporators: George H. Bridge, Jr., of Ceanston, Frederick D. Grove of Central Falls, and Oscar A. Ryffe, of Providence, all of Rhode Island. Principal office, 118 Dorrance street, Providence, Rhode Island. To deal in tires.

Ineeda Tire Co., Inc., October 14 (Texas), $15,000. F. D. Treadway, president and manager; C. H. Otto, vice-president, and J. H. Bammel, secretary and treasurer, all of Houston, Texas. Principal office, 401-403 San Jacinto street, corner Preston avenue, Houston, Texas. Distributors of tires and auto accessories.

Metropolitan Truck Tire Corporation, November 17 (New York), $50,000. Incorporators: Alfred Foster, 4117 Wilson avenue, New York; Bertha Dudde, 3236 Bronx Blvd., Bronx, and John J. Ryan, 355 East 149th street, Bronx, New York, all in state of New York. Principal office, Long Island City, N. Y. To carry truck tires.

Nordhaus Tire Service, Inc., October 24 (New York), 100 shares no par value. Incorporators: M. G. Owens, 183 Wallace avenue; R. E. Allen, 400 Elmwood avenue, and C. C. Jewett, 77 Bryant avenue, all of Buffalo, New York. Principal office, New York County. To manufacture tires and rubber goods.

109 Tire Sales Co., Inc., October 24, (New York), 100 shares no par value. Incorporators: R. E. Allen, 400 Elmwood avenue, Buffalo; W. M. Dow, Tonawanda, and C. C. Jewett, 77 Bryant avenue, Buffalo, all of New York. To manufacture tires for automobiles.

Paratex Rubber Co., October 28 (New Jersey), 50,000 shares of 7% cumulative preferred stock and 50,000 shares of common stock without par value. Preferred shares are of the par value of $10 each. Incorporators: E. T. McQuade, R. F. Beech and C. V. Miller, all of 120 Broadway, New York City. Agent in charge is Herbert C. Stoddart. Principal office, Midland avenue, Garfield, New Jersey. To manufacture rubber products of all kinds and products of which rubber is a component part.

Public Service Tire & Rubber Co., Inc., October 23 (New York), 200 shares no par value. Incorporators: L. K. Beller, Michael Beller, and Eva Beller, all of 908 48th street, Brooklyn, New York. Principal office, Kings County, New York. To manufacture tires.

R. A. C. Tire Corp., The, October 28 (Delaware), 25,000 shares without nominal or par value. Incorporators: S. L. Mackey, L. C. Christy, and H. Kennedy, all of Wilmington, Delaware. Principal office with the Corporation Service Co., Equitable Building, Wilmington, Delaware. To manufacture and deal in articles consisting wholly or partly of rubber, metal and other materials.

Roddy Tire Co., Inc., November 3 (New York), 100 shares no par value. Incorporators: M. G. Owens, 183 Wallace avenue; R. E. Allen, 400 Elmwood avenue and C. C. Jewett, 77 Bryant avenue, all of Buffalo, New York. Principal office, Manhattan. To manufacture tires and rubber goods.

Rubber-Blak Compounding Co., The, October 21 (Delaware), 1,000 shares without nominal or par value. Incorporators: S. L. Mackey, L. C. Christy and H. Kennedy, all of Wilmington, Delaware. Principal office with the Corporation Service Co., Equitable Building, Wilmington, Delaware. To acquire raw materials, and manufacture the same into rubber black.

United & Globe Rubber, Inc., November 12 (New Jersey), $500,000 preferred stock and 12,000 shares of common stock without par value. Incorporators: Edward B. Boies; Asher Mayer and William J. Killea, all of 27 Cedar street, New York, N. Y. Principal office, corner of Globe and Prospect streets, Trenton, New Jersey. To buy and sell cotton, duck, canvas, rubber and the elements and products thereof.

Visometer Corporation, The, October 31 (Delaware), 4,000 shares of Class A, par value $100 and 1,000 shares of Class B, without par value. Incorporators, S. L. Mackey; L. C. Christy and M. Kennedy, all of Wilmington, Delaware. Principal office, with the Corporation Service Co., Equitable Building, Wilmington, Delaware. To carry on a business of manufacturing valve gages for automobile tires.

Weber Truck Tire Co., October 17 (New Jersey), $25,000. Incorporators: Edward C. Cummings, Herman Weber and Henry C. Weber, all of 608 Market street, Hoboken, New Jersey. Principal office, 34 Newark street, Hoboken, New Jersey. To manufacture and deal in truck tires and other goods.

The Rubber Trade in the East and South

The rubber plants of the East and South are going strong. No reports are heard of lack of business in any line of the industry, although in some directions higher prices would be warranted. The usual seasonal depression is absent. Tire output is being well maintained and some makers are embarrassed with orders beyond their capacity. Footwear factories are going well on winter and heavy goods and are starting on production of tennis and other sport shoe lines somewhat in advance of usual. Heels, matting and flooring plants are very active. Sharp competition continues in heels particularly. In this line adequate profits seem to be unattainable.

Insulated wire and cable factories are operating steadily and no effort is being made to overcrowd the works for record output.

Belting, packing, hose and goods for every mechanical purpose are being turned out steadily in heavy volume. The usual end of the year depression is not yet evident. Garden hose and fruit jar rings, which class as seasonal goods, are now in full production for 1925.

Dovan DPG Output Passes 500 Tons

From a very modest start diphenyl guanidine (DPG) has become in four years, by reason of its adaptability, one of the foremost vulcanization accelerators used in rubber manufacturing practice.

Early in 1920 Morris L. Weiss, who had done a considerable experimental and practical work on the use of diphenyl guanidine as a rubber accelerator, entered into an agreement with Henry S. Doty and Van Lear Woodward to manufacture and sell this material to the rubber industry. Their plant began operation during the summer of 1920 and the material was offered to the trade in August of that year, which date marks the introduction of DPG in the rubber industry.

Rubber manufacturers generally began to realize the value of the new accelerator early in 1921, but in the fall of that year the original plant of the Dovan Corporation was destroyed by fire. A new plant was promptly started in leased premises in North Newark, New Jersey, and has been in operation for three years. The Dovan Company has now purchased it, together with adjoining property, in connection with plans to meet the increasing growth of business.

The popularity of DPG with rubber manufacturers is shown by the fact that in November of this year the Dovan Company manufactured and shipped the millionth pound of this material since founding their manufacturing business in 1920. Although made on a large commercial scale the product is almost chemically pure. When one considers the average amount of this accelerater, used in proportion to rubber it is seen that 1,000,000 pounds of DPG is sufficient, under average conditions, to accelerate the vulcanization of over 75,000 tons of crude rubber.

The Newark plant of the Dovan Chemical Corporation is managed by Carlton P. Bardsley and the company also maintains a research staff for the investigation of chemical problems and materials together with a rubber testing laboratory, in charge of Joseph Breckley, which is at the service of the company's customers and friends.

Eastern and Southern Notes

Frank A. Kissell, formerly manager of the branch maintained at Philadelphia, Pennsylvania, by the Kelly-Springfield Tire Co., 250 West 57th street, New York, N. Y., has retired on pension, and has been succeeded by R. E. Hastings. W. H. Bell, formerly assistant general sales manager, has also resigned, J. Jordan becoming his successor in a similar capacity.

Having leased a part of the Firestone Tire & Rubber Company's building at 63rd street and West End avenue, New York, N. Y., the Truck-Bus Tire Service Corporation, a new concern capitalized at $100,000, will carry a complete line of Firestone solid and pneumatic truck casings. Modern equipment has also been installed for the handling of these goods, and efforts will be made to render satisfactory service. E. Harker is manager of the Truck-Bus company.

At the convention held November 17, 18 and 19 at Atlantic City by the Association of National Advertisers, C. F. Beatty, advertising manager of The New Jersey Zinc Co., 160 Front street, New York, N. Y., was elected a director. Mr. Beatty will fill the unexpired term of Ralph Starr Butler of the United States Rubber Co., who was elected vice-president.

Under the name of Pell & Easley, Inc., George E. Pell and W. T. Easley have established themselves as agents and brokers in crude rubber of all grades, with offices at 44 Cedar street, New York, N. Y.

The Standard Machinery Co., with main offices and works at Mystic, Connecticut, and branch offices at 41 Park Row, New York, manufactures standard toggle presses for molding and curing rubber goods; seaming and cutting out sheet rubber articles of all kinds.

The new manager of the soles and heels department maintained by the United States Rubber Co., 1790 Broadway, New York, is M. G. O'Harra, formerly in charge of the company's New York branch. Mr. O'Harra became connected with the organization in 1913, serving since that time in the various capacities of branch manager, assistant manager of branches, and manager of branch footwear.

H. A. Bly, the recently appointed manager of the New York branch of the United States Rubber Co., 1790 Broadway, New York, N. Y., began work with that organization in 1916, and has also served as branch manager for the company at St. Paul and Toledo.

John D. Carberry, assistant secretary and assistant treasurer of the United States Rubber Co., has resigned and will retire December 31, 1924, after nearly 33 years' service beginning in 1892 as secretary of the committee which valued the properties and assets of the various companies entering into the parent company. For many years he served both as secretary and private secretary to President Colt.

Mr. Carberry has served as assistant secretary and assistant treasurer of the United States Rubber Co. and also was a director and officer in many of its subsidiary and affiliated companies.

He probably will not permanently retire from business but will doubtless enter some line other than rubber.

The Nestler Rubber Fusing Co., Inc., 245 West 55th street, New York, N. Y., claims that by a special process a worn tire tread can be so built up that the casing can deliver 75 per cent of the mileage when new, and that "Nestlerizing" will save the car owner 50 per cent of his tire expense. J. C. Kimball is president of the organization.

Edward Volney Peters, general sales manager of the New Jersey Zinc Co., 160 Front street, New York, N. Y., was recently elected president of the National Paint, Oil and Varnish Association. For many years Mr. Peters has been interested in the association's work, and last year was appointed eastern zone vice-president. He is also one of a group of fifteen men who have been instru-

mental in organizing the National Association of Purchasing Agents.

Amanda Allen, Inc., 171 West 71st street, New York, N. Y., is an organization established October 14, 1924, for the purpose of buying, selling, renting and manufacturing rubber merchandise and kindred commodities. The officers and also directors of the concern, which will carry on a mail order business exclusively, are: Eugene Christian, president; Myron J. Folensbee, vice-president; Morris S. Shefferman, secretary; and Nathan W. Shefferman, treasurer.

William A. North, formerly general manager of footwear sales for the United States Rubber Co., 1790 Broadway, New York, N. Y., has been appointed merchandise manager. He has been with the United States organization for the past twenty-three years, having been successively in charge of the subsidiary Utica Rubber Co., and the Columbus, Pittsburgh, and Boston branches of the United States Rubber Co.

As successor to William A. North, Frank E. Church has been appointed manager of the footwear sales department. Mr. Church, who since 1921 has been president of the Beacon Falls Rubber Shoe Co., was prior to that vice-president, treasurer and manager of the Northern Shoe Co., his association with the United States Rubber Co. beginning in 1919 when he took charge of that company's branch at St. Paul, Minnesota.

The Doehler Die Casting Co., Brooklyn, New York, has purchased the plant of the former Batavia Rubber Co., Batavia, New York, and will use the property in its manufacture of brass castings, originally produced at the Brooklyn plant. In the course of time the Batavia factory will be enlarged.

The New Protector, Inc., 1435 Bushwick avenue, Brooklyn, New York, N. Y., is a new organization formed for the purpose of handling automobile accessories, and chiefly Coffield Tire Protectors, a line of goods manufactured at 117 Court street, Dayton, Ohio. V. M. Corvaglia heads the first-mentioned organization.

The Eriksen & Elze Tire Co., distributer of Firestone truck tires, is maintaining two establishments in Brooklyn, New York, one at 12-14 Frost street, and the other at 499 Hamilton avenue.

Twenty-one distributing outlets in various sections of the country are now serving the interests of the Dunlop Tire & Rubber Co., Buffalo, New York. A conference of the organization's divisional sales managers was held October 3 and 4 at the Buffalo Athletic Club when spring dating plans and the business prospects for the coming year were discussed.

The factory of the Syra-Cord Tire & Rubber Corporation, Syracuse, New York, has been running at capacity all summer, while the company's fall business has exceeded all previous years. The present schedule will be maintained throughout the winter months. The three-day conference held recently at the plant closed with excellent prospects for the future.

Clinton E. Little, formerly sales manager of the Beacon Falls Rubber Shoe Co., Beacon Falls, Connecticut, has been appointed president of that organization, succeeding Frank E. Church. Mr. Little has for the past two years been in charge of the company's soles and heels department.

The Castle Rubber Co. has discontinued operations at East Palestine, Ohio, and has removed to Butler, Pennsylvania, where in a larger and well-equipped plant Ca-Sel-Co rubber products will be manufactured. With no change in name or management, work began at the new location November 1, 1924.

Campbell & Co., Bigelow Boulevard, Pittsburgh, Pennsylvania, reports much success in its sales of General balloon tires, both the interchangeable type and those for small diameter wheels. James Campbell heads the organization.

Carl L. Reed has been appointed by The Miller Rubber Co., Akron, Ohio, as branch manager at Pittsburgh, Pennsylvania, succeeding J. A. Shrimplin. The latter has been transferred to the company's Akron office.

The Pine Tree State Rubber Heel Co., Sabattus, Maine, which has been maintaining during the past year a schedule of a little more than 20,000 pairs of heels a day, is now increasing its output to 35,000 pairs, while there are indications of a still further advance before the first of January. Additional equipment affording a plant capacity of approximately 50,000 pairs of rubber heels has also been recently installed.

The Fuze-On Rubber Co., 220 Front street, Bath, Maine, has been organized for the purpose of manufacturing patches for inner tubes and tires, rubber boots and shoes, rubber gloves, etc. No cement, heat, or gasoline are used in the repairing process, and only the cleaning and welding compound. William Whitney is secretary of the new organization.

The Turner Tire Co., Seventeenth and Main streets, Pine Bluff, Arkansas, has been organized for the purpose of selling and buying cars, Firestone and Oldfield tires, and accessories. Joseph H. Turner is president.

The Tire Shop Co., 401 Delaware avenue, Wilmington, Delaware, is doing a wholesale and retail business in solid and pneumatic tires and brake linings. The company also maintains two other stores in Chester and Allentown, Pennsylvania. Nathaniel W. Howell heads the organization.

All of the officers and directors of the Bibb Manufacturing Co., Macon, Georgia, were reelected at the company's annual meeting, the officers including the following: W. D. Anderson, president; James H. Porter, first vice-president; A. A. Drake, Jr., secretary and treasurer; and C. C. Hertwig, assistant treasurer. This company, which specializes in the production of tire fabric, has declared its usual quarterly dividend of $1 per share on both common and preferred stock, payable January 1, 1925.

The Louisiana Tire Co., Inc., jobber and factory distributer at 608 Baronne street, New Orleans, Louisiana, has been celebrating its seventh anniversary. The company handles Standard Four tires as well as a large stock of automobile accessories.

B. V. Redmond & Son, Inc., 108-114 North Peters street, New Orleans, Louisiana, is the exclusive distributer for Racine tires in the state of Louisiana and a large part of Mississippi. Vincent R. Redmond, president and general manager of the organization, reports an excellent business.

Wilson W. Baldwin has been transferred to the Baltimore, Maryland, branch maintained by the United States Rubber Co., 1790 Broadway, New York, N. Y.

The Quigley Tire & Rubber Co., 721-23 Union avenue, Memphis, Tennessee, carries on a wholesale and retail tire business, the organization having been originally established in 1912 as the Imperial Tire & Rubber Co. For the last seven years Hewitt tires have been carried exclusively. P. J. Quigley heads the company.

The Hodges Tire Co., 302 Montana street, El Paso, Texas, has been organized for the purpose of distributing "Savage" tires throughout western Texas and southern New Mexico. Harlan A. Hodges and W. F. Ritter head the organization.

The Kelly Springfield Tire Service, 701 Texas street, El Paso, Texas, reports remarkable success in only six months of operations, having been established in May of the present year, while everything points to continued good business during the future. Samuel L. Hausman heads this distributing organization.

H. H. Sutton has resumed the managership of the branch at Dallas, Texas, maintained by The Mohawk Rubber Co., Akron, Ohio. Mr. Sutton has for some months been employed on the sales staff of the home office.

The McCoy Tire & Vulcanizing Co. is carrying on operations at 1411-13 Main street, Lynchburg, Virginia.

The Rubber Trade in New Jersey

The rubber business in New Jersey continues to be good and neither tire nor mechanical goods manufacturers expect a very dull winter. There appears to be an excellent demand for cord tires of various sizes, but balloon tires are not selling so rapidly. Orders for heels and soles continue to keep the manufacturers busy, and the demand for hard rubber products continues to be good. Despite the fact that tire manufacturers are busy and there is a good demand for mechanical goods one big rubber reclaiming plant in Trenton was compelled to close down because of prices and competition. The shutdown is believed to be only temporary. Two tire-making concerns experienced a little trouble when they placed a cut in wages into effect and short strikes followed, but the men finally decided to accept the cut. There have been some price changes in certain finished products reported during the past month, but this could not be confirmed.

United & Globe Sold

Federal Judge Runyon has confirmed the sale of the United & Globe Rubber Corporation, Trenton, New Jersey, to Peter Vredenburgh, of Trenton, for $250,000, payable $50,000 cash and $200,000 in ten years. Confirmation was made upon application of Nathan Bilder, counsel for the receivers, J. Philip Bird and Edward C. Rose.

Following are the officers of the new company, known as the United & Globe Rubber Co., Inc.: Peter Vredenburgh, president; H. L. D. Lewis, vice-president and treasurer; D. M. Barr, assistant treasurer and secretary; and George F. Fisher, factory manager. Mr. Fisher has had a broad experience in rubber manufacturing, covering the past eighteen years.

The directors include John S. Broughton, A. Dayton Oliphant, Peter Vredenburgh, H. L. D. Lewis, Joseph McDermott, and F. M. P. Pearse.

The new company has purchased the land, buildings, machinery, patents and trade marks of the old concern and is now running about sixty per cent of its capacity. The products include every variety of mechanical rubber goods and automotive equipment made of rubber except tires and tubes. The company will commence business with $150,000 in cash as its assets, and no liabilities except the $200,000 6 per cent bonds, secured by the plant and equipment appraised at over $750,000.

Lectures on Rubber Topics

The School of Industrial Arts, Trenton, New Jersey, is this year offering a number of instructive lectures on the following rubber subjects: Rubber growing; latex; plantation and wild rubber; transportation of crude rubber; preparation in the factory; compounds; accelerators; mechanical processes; mechanical rubber goods, tires and tubes; hard rubber compounding; vulcanization and finishing operations.

New Jersey Notes

Robert J. Stokes, secretary of the Thermoid Rubber Company, Trenton, New Jersey, has been chosen president of the Asbestos Brake Lining Association, following the resignation of M. F. Judd, the former president. At the same time J. M. Weaver, of the Keasbey-Mattison Co., was appointed second vice-president.

Because of a serious breakdown the Ajax Rubber Co., Trenton, New Jersey, was compelled to lease the mill room of the Bergougnan Rubber Co. until repairs have been completed. One of the big shafts at the Ajax plant broke down while the company was very busy and an order was secured from the United States District Court sanctioning the lease of the Bergougnan mill room for the remainder of the year.

The Pierce-Roberts Rubber Co., Trenton, New Jersey, specializing in druggists' sundries, recently completed a new addition in order to take care of increased business. The company has been running to capacity for several months and expects to turn out a new line of goods shortly.

The Essex Rubber Co., Trenton, New Jersey, reports active business and good prospects for the winter months.

The Trent Rubber Co., Trenton, New Jersey, has enough orders on hand to keep the plant running to capacity for some time. All the company's salesmen report conditions good in their respective territories.

The Bergougnan Rubber Co.'s plant at Trenton, New Jersey, has been closed for several months and what is to become of the factory is undetermined as yet. Charles E. Stokes and Gaston Tisne, the receivers, have liquidated all the debts of the concern.

May Ashmore Thropp, who was recently elected to the New Jersey State Assembly on the Republican ticket, is an attorney at law and counsel for the Trent Rubber Co., John E. Thropp's Sons Co., and the Hendrie Rubber Co. Miss Thropp is the daughter of Thomas H. Thropp, former president of the Trent Rubber Co. She is a graduate of the Cornell University law school.

A number of the Trenton, New Jersey, rubber manufacturers had appropriate floats and a large turnout of employes in the recent big political parade. The most novel was that of the Essex Rubber Co., whose girl employes marched in individual imitation rubber heels, so large that only the head of each girl could be seen. The Thermoid, Hamilton, Home, and Joseph Stokes rubber companies and the Crescent Insulated Wire & Cable Co. also had floats in line.

The Murray Rubber Co., Trenton, New Jersey, reports that orders have increased and night and day operations will be continued for the next five months at least. Sales for October were five times larger than October last. The company's business has been rapidly increasing during the past four months.

The Thermoid Rubber Co., Trenton, New Jersey, announces that future prospects are bright and that with election over a noted improvement is looked for. The concern continues busy both in the tires and tube and the mechanical departments.

The Globe Rubber Tire Manufacturing Co., Trenton, New Jersey, reports no let-up in business, with an increase in orders for tubes.

The Joseph Stokes Rubber Co., Trenton, New Jersey, now employs about 800 hands and is quite busy. Under normal conditions about 1,200 hands are employed, and it is expected that the full force will be working within a short time.

The plant of the Near-Para Rubber Co., Trenton, New Jersey, was closed for several weeks because of business conditions, being unable to compete with the present prices of reclaimed rubber. Hyman A. Rosenthal, president of the concern, says he does not expect any further business troubles. The Near-Para company is the largest rubber reclaiming concern in Trenton.

The Combination Rubber Co., Trenton, New Jersey, now has branches in all the principal cities of the United States, having recently announced eighty-six new distributers. The company's business is well established and the Viking tires are known all over the United States. The concern's output is 800 tires a day and is expected to increase to 1,200 after the first of the year.

The Phelps Tire Co., Garfield, New Jersey, has acquired the plant formerly owned by the Armstrong Tire Co., and is now maintaining a production schedule of 350 tires a day. Plans are also under consideration for an output in the near future of 500 tires a day. Harry E. Phelps heads the new organization.

The production of rubber substitutes and factice, as manufactured by Tyson Brothers, Inc., Woodbridge, New Jersey, is being constantly improved, and new grades of goods steadily added to the

company's line. J. A. Kendall is the company's representative at Akron, Ohio.

The States Metals Co., Inc., 30 Church street, New York, N. Y., has sold to the Rare Metal Products Co., Belleville, New Jersey, all trade marks and processes heretofore used in its manufacture of antimony sulphurets.

The machinery and equipment of the Bloomfield, New Jersey, plant of the Combination Rubber Company were recently sold at public auction. This included ten mills, five calenders, eight vulcanizers, twelve hydraulic presses, ten pumps and tanks, complete machine shop, thirty miscellaneous machines, etc. The real estate, comprising sixteen buildings and a power plant, will be disposed of later. The Combination company recently erected a modern four-story plant at Trenton, New Jersey.

Surplus Trading Corporation, 102-110 Parkhurst street, Newark, New Jersey, is prepared to buy surplus stocks of manufactured rubber goods, rubber materials and machinery of all kinds. This service is of importance and value to the trade.

The Rubber Trade in Rhode Island

The Rhode Island rubber industry in the past has depended very largely on the rubber shoe branches for volume and value of production to carry it well up in the list of the state's industries, but during the past two years weather conditions have not been conducive to unusual activity. The plants producing rubber footwear have been operating on a curtailed schedule for some time, and stocks are larger than the immediate demand warrants. Plants producing tires have been more consistently busy although not inordinately so, and the tire outlook is more encouraging than it is for footwear.

Tire Dealers' Stocks

A review just issued by the Department of Commerce at Washington presents figures of October 1, showing that Rhode Island tire dealers carry comparatively small stocks, being close to the source of supply. The average Rhode Island stock includes 40.8 casings and 62.3 inner tubes, which is well below the average of 49.7 casings and 79.9 tubes for the country as a whole.

Eighty-three Rhode Island tire dealers responded to the questionnaires, and 22 dealers had 245 balloon tires on hand, 75 reported 3,061 high pressure tires, 83 dealers had 5,175 inner tubes on hand. One dealer carries a stock of more than 400 casings; the next largest stock being between 100 and 200 casings, carried by five Rhode Island dealers. Two dealers carry more than six makes of tires; one carries six makes; one carries five makes, and two carry four makes. All told, 56 dealers carry more than one make.

Most of the tire dealers find their major business in the sale of automobile accessories or gas and oil, only twenty reporting that tires and tubes constitute the major portion of their sales. Sixteen reported vulcanizing to be their main business; twenty-one sell automobiles; 56 sell accessories; a similar number sell gas and oil, and fifteen sell general hardware.

Bus Lines Increasing

The increasing use of rubber-tired motor vehicles, especially buses, in Providence and vicinity is rapidly becoming a matter of considerable importance to traffic conditions and also in the direct influence that it has on the rubber industry. Not only are these buses replacing discontinued trolley lines and superseding railroad lines that have become unprofitable, but they are being established on runs that have never before been directly connected with this city. Some of these lines already in operation are to Boston, to Fall River and New Bedford, to Taunton and Brockton, to Worcester, to Springfield and to Hartford, as well as to a number of smaller places nearer to this city.

It is conservatively estimated that the daily total already established out of Providence approximates 3,500 to 5,000 miles. The longer routes make three to six trips each way daily, while the shorter ones run more frequently. Many of these lines use the latest models of finely appointed cars seating about 25 or 30 passengers. The United Electric Railroads Co. of Providence has already begun the equipment of some of its non-paying routes with motor buses of special type and is preparing to extend this service to still other of its suburban lines.

Fall Meeting Committee D-13, A.S.T.M.

The fall meeting of Committee D-13, of the American Society for Testing Materials was held November 14-15, 1924, at the Providence-Biltmore Hotel, Providence, Rhode Island. The following committee reports were read:

Sub-Committee VII, on Yarn, Thread and Twine. K. B. Cook, chairman. Mr. Cook told of the division of this committee into two sub-sub-committees, Sub-Sub-Committee 1 on Cotton Yarns, Weaving, Knitting, Electrical, etc., and Sub-Sub-Committee 2, on Sewing Thread and Thread Yarns. S. A. Steere has been made chairman of the former and F. S. Cobb chairman of the latter. Neither of these men was able to be present but each submitted a report, which was read.

Committee XIII, on Narrow Fabrics. W. H. Moore, chairman. This was the first report of this new committee and was read by the chairman.

Sub-Committee XI, Knit Goods. W. E. Glancy, chairman. Mr. Glancy read a complete report on this subject, in which definite recommendations were made, with the exception of a method of obtaining strength. He stated that he hopes to recommend a definite strength test method by the time of the spring meeting and plans to investigate several different methods of test in the meantime.

Sub-Committee IX, Hose, Belt, and Numbered Ducks. A. M. Tenney, chairman. Mr. Tenney read specifications for cotton duck which had already been approved by Committee D-13 but which are now rewritten in the language of the A.S.T.M.

Sub-Committee VI, Imperfections and Tolerances. C. B. Finckel, chairman. The report of this committee was read by Mr. Edwards. It was recommended that the scoring system now applying to both square woven and cord tire fabrics be cut in half; i. e., instead of allowing 4 major or 20 minor defects or any combination of these, that 2 major or 10 minor defects or any combination of these defects will be permissible in a roll of 100 square yards.

Rhode Island Notes

The American Wringer Co. is erecting a building 22 by 46 feet on Social street, Woonsocket, to be used as a dry kiln.

The plant of the National India Rubber Co. at Bristol was closed in all departments on November 11 in observance of Armistice Day. The plant is working on a five-days-a-week schedule at the present time in the keds division and the management hopes to maintain a steady schedule for some time to come, but this will depend very largely upon weather conditions.

Business continues good at the Davol Rubber Co., and notwithstanding that its plant at the foot of Point street has more than doubled its capacity in the last couple of years, its constantly increasing business apparently develops faster than factory expansion, and practically every department is not only rushed to its fullest capacity, with overtime cards in many instances, but is crowded for room. This is particularly the case as regards novelties and druggists' sundries.

The Taunton Coated Fabric Works, Inc., has been organized at Taunton under the laws of Massachusetts to do a general manufacturing and merchandising business and more particularly to manufacture oilcloth, enameled cloth, rubberized cloth, artificial leather, coated fabrics, etc., either on its own account or as agent or contractor for others. The capitalization is $90,000, consisting

of 900 shares of common stock with par value of $100. Murray F. Hall is president; E. Cabot Storrow, Jr., Needham, Massachusetts, treasurer, and George K. Gardner, Hingham, Massachusetts, clerk.

The Rubber Trade in Massachusetts

The anticipated outcome of the election gave prompt stimulus to business activity throughout the country and was nowhere felt more than in Massachusetts. With the prospect of four years of political stability at home, and order rapidly emerging from chaos in Europe, the rubber industry is looking forward to a period of real prosperity of that duration at least. Factories in most branches of the industry are operating at practically normal capacity with orders booked well ahead and coming in daily. The advance in crude rubber is giving manufacturers some concern, as keenly competitive rubber goods prices continue low and profits are not what they should be.

Rubber footwear factories are at close to capacity production on fall and winter goods, and the demand for rubber heels, soles, cement, and shoe findings continues good. Tire output is normal and likely to continue so for the balance of the year. Although balloon tires are rapidly becoming original passenger car equipment, those firms which continue to make high-pressure tires exclusively are still finding an ample replacement demand from tire distributers.

Mechanical rubber goods sales have increased steadily with improving general business, and large recent railway equipment orders have been a factor. Building activity with its demand for insulated wire continues large, due to the warm, pleasant weather. Building permits for September represented an increase of 50 per cent over September, 1923. This is a busy season in druggists' sundries, but the long drought has reacted adversely on retail sales of weather-proof clothing and light rubbers.

Tire Companies Acquire Cotton Mills

Pending financing, negotiations have been concluded whereby the Goodyear Tire & Rubber Co., Akron, Ohio, and the Fisk Rubber Co., Chicopee Falls, Massachusetts, become joint purchasers of the Rotch Mills of the American Cotton Fabrics Co., at New Bedford. Whether the newly acquired property will be operated as a unit for the account of both companies, or a physical division made, is not yet determined.

The Fisk Company already owns plants for the production of cotton yarn for tire fabric at Westerly and Pawtucket, Rhode Island, and leases a plant at Jewett City, Connecticut. The Goodyear Company owns cotton mills at Killingly, Connecticut, and in California, besides some 37,000 acres of cotton growing land in Arizona.

This move, coming on the heels of the announcement of the incorporation of the Firestone Cotton Mills to operate the Sanford Mills, at Fall River, just purchased by Firestone Tire & Rubber Co., Akron, Ohio, indicates the breadth of the current move among tire manufacturers toward the acquisition of plants for the production of their own tire fabric. It is significant that recent purchases have been confined to northern properties in spite of the admitted advantages of southern mills in the production of tire fabrics.

The Firestone Cotton Mills has incorporated under the laws of Massachusetts with capital of $5,000,000 common stock $100 par. Incorporators are: Bernard M. Robinson, Akron, Ohio; Roger F. Hooper, Boston; Franklin King, Brookline; Chauncey W. Hood, Boston; and William A. Hill, Cambridge.

Reclaimers Optimistic

Reclaimers have been watching the advancing crude rubber market with great interest approaching jubilation, and report that the demand for reclaimed rubber has increased rapidly since rubber went above 27 cents per pound. A marked spirit of optimism now pervades this branch of the industry and it is commonly said that no fears are entertained for the future of reclaimed rubber.

It is recognized that reclaims are at the present time experiencing the same keen competition as other lines of rubber goods. Also that there are vast accumulations of scrap piling up which will have to find some use. But it is realized that the small amount consumed through special developments, such as sandals, cheap matting, tire reliners, etc., will make little impression on scrap supplies.

The general rubber situation and the immediate future prospect for scrap seems to be so much better than it has been at any time this year that most reclaimers do not now contemplate any other outlet for their goods, believing that their best interest lies in confining themselves exclusively to reclaiming and not manufacturing any article that would bring them into competition with their customers. However, those reclaimers who during recent lean years entered other fields of rubber manufacture closely allied to the reclaiming trade, such as rubber flooring, heels, insulating tapes, both friction and rubber, etc., generally feel that their ventures have been satisfactory and desirable. They will probably maintain and develop them further, at the same time continuing as active reclaimers.

National Association Cotton Manufacturers' Meeting

The annual meeting of the National Association of Cotton Manufacturers, now numbering about one thousand members, was held November 12 and 13 at the Copley-Plaza Hotel, Boston, Massachusetts, the general topic under discussion being manufacturing and selling cotton goods.

At the opening session, Robert Amory, president of the association, sounded a note of optimism, which was received with great enthusiasm, when he said: "It looks now as if the industry has definitely turned the corner and is proceeding slowly though steadily toward better days."

H. C. Meserve, secretary of the association, in his report stated: "It is generally agreed that the period covered herein, from May 1, 1924, has been one of the most trying in every way through which the industry has passed since 1850."

Deliveries on New York cotton contracts at southern seaports furnished an absorbing topic of discussion. Byron P. Parry, an examiner of the Federal Trade Commission, opened the discussion of the commission's radical proposal. After explaining the reasons for its adoption and just how it would operate, he asserted that "there is no question of the sound practicability of the proposal."

C. B. Howard, general sales manager of the American Cotton Growers' Exchange, Nashville, Tennessee, warmly endorsed the commission's report and vigorously condemned the manipulations on the New York exchange.

Richard T. Harriss, vice-president of the New York Cotton Exchange, took issue with both speakers, while Albert Greene Duncan, treasurer of the Harmony Mills, who brought the discussion to a close, declared that government regulations have already done more harm than good to the industry and that the recent bi-monthly crop estimates published by the Department of Agriculture instead of reducing speculation have increased it.

"Any further interference in the free interchange of cotton on the New York Cotton Exchange is going to react in the long run not only against the producer but against the consumer as well," he said.

Wednesday night the cotton men, with their wives and daughters, enjoyed a cabaret dinner in the ballroom of the hotel. A special entertainment was given by talented entertainers. On Thursday evening a banquet session closed the meeting.

Morgan Butler, of New Bedford, was elected president of the association to succeed Robert Amory. Other officers were chosen as follows: Senior vice-president, Russell H. Leonard, treasurer of the Ipswich and Pepperell Mills; junior vice-president, John A. Sweetser, treasurer of the Boston Manufacturing Co.

Directors for three years: W. Irving Bullard, vice-president of

the Merchant's National Bank, Boston; John L. Burton, agent of the Nashaweena Mills, New Bedford; John S. Lawrence, Lawrence & Co., Boston; James Sinclair, treasurer of the Charlton Mills, Fall River; E. Kent Swift, treasurer of the Whitin Machine Works, Whitinsville.

Directors for two years (to fill unexpired terms caused by the nominations of Russell H. Leonard and John A. Sweetser): Albert G. Mason, treasurer of the Whitman Mills, New Bedford; W. S. Pepperell, Providence, assistant treasurer of the Grosvenor Dale Mills; National council representative (term expires in 1927) C. F. Broughton, treasurer of the Wamsutta Mills, New Bedford.

Railroad Investigates Motor Transportation Problem

Thanks to rubber tires and motor vehicle development made possible by their evolution, truck and bus transportation over New England highways has assumed such proportions that the Boston & Maine Railroad has established a department to study the subject. It will be in charge of Howard F. Fritch, formerly assistant general manager of the Eastern Massachusetts Street Railway, aided by Frank I. Hardy, formerly manager of the Chelsea division of that railway, acting as assistants to Homer Loring, chairman of the executive committee of the Boston & Maine.

J. H. Hustis, president of the Boston & Maine, outlines the significance of the investigation in the following statement: "The inroads of motor competition in Boston & Maine territory have been constantly growing, and have reached the stage where the railroad must determine what its future attitude toward this competition is to be. The question in some sections is whether the railroad or motor truck can best serve the territory. It is apparent that in certain fields both instrumentalities of transportation cannot be continued, and that either one or the other must prevail. The railroads cannot continue to contribute toward the building of highways and their upkeep in order to subsidize a form of transportation which is sapping railroad revenues, and, in the case of some branch lines, reducing them almost to the vanishing point."

Massachusetts Notes

Among the new rubber firms now doing business in the Metropolitan district of Boston are the Alb Rubber Co., rubber goods, 39 Warren street, Cambridge, Massachusetts; Radio Pack Distributing Co., rubber goods, 44 Bromfield street, Boston; Parker R. Browne, automobile tires, 200 Stuart street, Boston.

The Taunton Coated Fabric Works, Inc., has been organized at Taunton, Massachusetts, to do a general manufacturing and merchandising business, and more particularly to manufacture oilcloth, carriage cloth, rubberized cloth, artificial leather, coated fabrics, etc., either on its own account or as agent or contractor for others. The capitalization is $90,000, consisting of 900 common shares, par value $100; three shares issued for cash. President, Murray F. Hall; treasurer, E. Cabot Storrow, Jr., Needham; clerk, George K. Gardner, Hingham, each holding one share.

Following the election of officers at the annual meeting of the Associated Industries of Massachusetts held late in October the rubber industry is now represented on the executive committee by George E. Hall, president and general manager of the Boston Woven Hose & Rubber Co., Cambridge, and Frederic C. Hood, president of the Hood Rubber Co., Watertown, Massachusetts, who as a former president of the organization is *ex-officio* a member of the committee.

The Appleton Rubber Co. manufacturer of reclaimed rubber and rubber compounds, Franklin, Massachusetts, some little time ago inaugurated a department for the manufacture of insulating tapes, both friction and rubber. This branch of the business has become quite an important factor in the output of the company, which now has an international distribution of its tapes throughout the electrical jobbing trade in this country and some foreign countries.

The Plymouth Rubber Co., Inc., Canton, Massachusetts, has been under the present ownership for three years, and during that time claims to have become the largest rubberizer of cloth in the world. Its friction tape department is doing a larger business than ever before, having offices in practically every country in the world. During the past few months it is said that the volume of the firm's business has more than doubled and the prospects for continued increase and for the rubber industry generally are considered very bright.

At the October monthly dinner of the Massachusetts Safety Council, Ernest L. Brown, of the Hood Rubber Co., Watertown, Massachusetts, spoke on "The Care of Plant Fire Apparatus." He gave a detailed account of necessary equipment, arrangement, care and use.

Miss Marion Healy, of the American Rubber Co., Cambridge, Massachusetts, presided at the last meeting of the Forewomen's Council of Boston. John Calder, consulting engineer, was the principal speaker, his subject being "Human Nature in Industry."

In common with other tire manufacturers, the Hood Rubber Co., Watertown, Massachusetts, has been doing a record business for a number of months. For the last three months orders received have been far ahead of production, although the "ticket" in the tire department has been stepped up to the highest figure in the history of the company, at 2,500 casings a day.

The Meade Rubber Sales Co., a subsidiary of the Meade Rubber Co., Stoughton, Massachusetts, manufactures raincoats made of Gos-mer-ett, the patent and trademark rights for this material being by James Meade, president and treasurer of the second organization above mentioned.

Moore & Kling, Inc., manufacturers of complete oil equipment, and particularly a combination rubber hose, have leased additional quarters at 221 High street, Boston, Massachusetts, while retaining another location in that city at 233 Purchase street. The concern is issuing an illustrated bulletin entitled "Moore-Flex Combination Gasoline Hose."

The Berkshire Rubber Co. of Massachusetts, Inc., 32 Fenn street, Pittsfield, Massachusetts, is a new concern, the successor of The Berkshire Rubber Co., also of Pittsfield. The new organization which, like its predecessor, will handle tires, tubes, and automobile accessories, is headed by J. F. Herbst, who was for eleven years connected with the old organization.

The Davidson Rubber Co., P. O. Box 48, Boston, Massachusetts, manufactures the "Banner" line of water bottles and syringes, and is offering to the jobber and dealer at special rates a case containing an assortment of the above-mentioned goods.

In a course of ten lectures announced by the Massachusetts Safety Council for foremen, members of safety committees and others who may be interested, two are of particular interest to the rubber trade. On December 2, Cyrus S. Ching, director of personnel, United States Rubber Co., will speak on "Organizing the Plant Safety Committee." On January 6, Charles F. Horan, manager of the safety and sanitation department, Hood Rubber Co., will speak on "Falls Inherited from Old Adam." These lectures will be given in the auditorium of the John Hancock Life Insurance building, 197 Clarendon street, and free ticket may be obtained by applying to the Council at 6 Beacon street, Boston, Massachusetts.

The Converse Rubber Shoe Co., Malden, Massachusetts, although experiencing a generally poor spring and summer business, earned its semi-annual dividend on the 7 per cent preferred stock by a comfortable margin in the first six months of its fiscal year ended September 30. With anything like a normal winter prevailing, Converse officials anticipate a shortage of rubber footwear, as dealers' stocks are very low. Output is nearing capacity with rising 13,000 pairs of footwear being turned out daily. The tire department is running at capacity.

The Rubber Trade in Ohio

General conditions in the rubber industry of Ohio show a marked improvement following the presidential election. Manufacturers, however, are proceeding cautiously in material commitments and production schedules, which is the custom at this time in anticipation of the coming inventory period.

Production of tires in the Akron district remains about the same, being maintained at approximately 85,000 daily. Following election, however, sales managers of most companies report an increased volume of orders from motor car manufacturers and tire dealers. The excellent fall weather has also helped tire sales to a large extent. More motor cars have been in use during the past six weeks than in any similar period in 1923 or 1922, according to reports. This condition is being reflected in a good demand for replacement tires. It is predicted that this will continue well into the winter months.

Another favorable factor is the fact that tire dealers are entering the winter season with stocks almost down to normal, indicating that a brisk tire production period is ahead. A survey taken last month by the United States Department of Commerce shows that 26,161 dealers whose stocks were examined have on hand approximately 53.6 tires each. This stock average was 92.6 casings on April 1, showing an excellent tire movement in the past six months. The consensus of opinion among rubber factory executives is that prices of tires will remain around the present level for some time to come.

Convention of National Tire Dealers Association

The Fifth Annual Convention of the National Tire Dealers Association, held at Akron, November 17 to 20, proved to be one of the most important and enthusiastic gatherings so far held for furthering constructive policies to advance business incident to tire sales and set in motion measures for the correction of trade abuses and the solution of the dealers' problems.

Over 800 tire dealers and manufacturers' representatives were in attendance. The scope of the association's activities the coming year will be expanded to include the truck tire field, particular attention being paid to the solid tire branch of this important business.

The convention was formally opened on Tuesday in the Akron Armory with an invocation by Rev. Wilbur V. Mallalieu, followed by an address of welcome to the dealers by Mayor D. C. Rybolt, of Akron.

Addresses

The business of the convention was started by President George J. Burger, whose interesting and important address discussed "The Definition of a Tire Dealer." During the sessions of the convention addresses on various phases of tire sales were presented as follows:

"Outlook in the Automobile Business," by Alfred Reeves, general manager of the National Automobile Chamber of Commerce; "Survey of Cost Accountancy Methods of Tire Dealers," by W. L. McNair, of the Harvard Bureau of Business Research; "The Value of Financial Control," by H. A. Blankenship, of Cincinnati, Ohio; "A Survey of Dealers' Stocks," by P. L. Palmerton of the Department of Commerce.

Discussions

The discussions of merchandising practices and sales policies were entered into with enthusiasm by the dealers, who apparently had so many subjects on their minds that they considered of prime importance that much time of one session was spent in explanations of objectionable practices by both retailers and manufacturers and in presenting and discussing those actions believed necessary to the advancement of the association. In the latter connection, there was a marked difference of opinion as to whether it was most important that the N. T. D. A. develop its membership strength or work on the basis of accomplishing more definite results with its present roster. It was suggested to relieve the national headquarters of the expense and trouble incident to the development of the further interest in the association and to offset the cost of employing a national organizer, by the appointment of district deputies by the president to take up association promotional work.

Factory Excursions

Afternoons during the convention were set apart for factory excursions to the tire plants of Akron and vicinity. Advantage was taken liberally of the courtesy on the part of the rubber companies, who afforded the delegates every facility to witness the production of tires and tubes of all types.

Exhibits

Supplementary to the instruction gained by excursions to the manufacturing plants were the elaborate displays exhibited by leading tire companies and equipment manufacturing concerns. These exhibits were held in the Portage Hotel and covered a wide range of products of interest to dealers in tires and accessories.

Social Features

Evenings during the convention were occupied with well-planned social features which culminated in a grand occasion following the business sessions of the first day when the armory had been converted into a banquet hall and nearly 400 dealers sat down to an ox-roast and movie-cabaret.

Tires Issues Convention Daily

One feature of the convention that created considerable discussion and praise was the Convention Daily issued by *Tires*. This four-page tabloid newspaper brought to the delegates and the hundreds of manufacturers prompt reports, in concise and breezy style, of the developments at the N. T. D. A. meetings and in the headquarters of the manufacturers and dealer groups at the various Akron hotels. This enterprise was highly commended and greatly appreciated on the part of the delegates generally and proved a great aid in facilitating the progress of the work of the convention.

Officers for 1925

The convention elected the following as officers of the National Tire Dealers Association for 1925: President, George J. Burger, New York, N. Y.; vice-president, James W. Waber, Chicago, Illinois; directors, Henry Aldern, Minneapolis, Minnesota; Clay Manville, Pittsburgh, Pennsylvania; H. A. Rhunke, Milwaukee, Wisconsin; Arthur Roderick, Akron, Ohio; P. J. Quigley, Memphis, Tennessee.

The organization will hold its next convention at St. Louis, Missouri, the choice of the delegates favoring that city over the claims of Buffalo, Louisville, Trenton and Boston.

Goodrich Sales Personnel Changes

With increasing business several changes in the sales organization of The B. F. Goodrich Rubber Co., Akron, Ohio, have become necessary, the most important of these changes including the following:

George B. Campion, who has been district manager at New York, N. Y., has been transferred to Akron as manager of mechanical goods sales, succeeding T. A. Bennett, who has been placed in charge of one of the departments of the new goods division. George Sawin, formerly branch manager at Chicago, becomes district manager at New York, while W. J. McKeown succeeds him at Chicago. W. H. Moore, formerly branch manager at Detroit, has been called to Akron, while Gregory Flynn, as his successor, has been transferred to Detroit. W. M. Stonestreet becomes branch manager at St. Louis, while E. C. Bard, formerly manager at Kansas City, takes his place as branch manager at Oklahoma City. F. E. Rusk has resigned as manager at Omaha and has been succeeded by R. R. Huston, while F. S. Evans has been chosen to succeed L. H. Deihl as branch manager at Charlotte, North Carolina.

Good 1924 Export Trade Anticipated

Executives of rubber factories in the Akron district confidently predict that on the basis of present shipments exports of rubber products during 1924 will exceed by a considerable margin those in the preceding year.

Exports from the United States for nine months of this year totaled $30,248,084, as compared with $29,692,753 in the same period of 1923, while those for September, 1924, were $3,292,441, as compared with $2,623,209 in September a year ago, according to the Department of Commerce.

Local manufacturers also point out that shipments are proceeding more steadily than last year, when the closing months witnessed a severe contraction in exports. The foreign trade is expected to be further stimulated by the operation of the Dawes plan, the German loan and a general improvement of conditions in Europe.

The Good Rubber Co. Begins Operations

A well-equipped plant at Kenmore, Ohio, a suburb of Akron, has been completed for the Good Rubber Co., and operations will begin December 1. With increased facilities, the organization will extend its schedule of production, adding to its output of toy balloons and rubber novelties such lines as surgeons' and household gloves, transparent nipples, and press goods. W. D. Good, the president and general manager of the organization, has had sixteen years of experience in the rubber industry, having been previously connected with several well-known rubber companies.

Goodyear Pioneer Airship Builder

The development of lighter-than-air craft has engaged the attention of the Goodyear Tire & Rubber Co., Akron, Ohio, since the year 1910. In 1911 the airship "Akron," with 400,000 cubic feet capacity, the largest dirigible ever built in this country, was constructed, while the first free balloon made by Goodyear appeared in 1913. During the war Goodyear produced for the government 800 kite balloons, 75 spherical balloons and 50 airships, while at the present time this Akron company is constructing for the United States Army a semi-rigid airship with a capacity of 720,000 cubic feet, the first ship of this type ever constructed in America.

"Advertising Makes the First Sale"

Need of a loyal and efficient factory organization was pointed out in an address by P. W. Litchfield, vice-president and general manager of the Goodyear Tire and Rubber Co., at the recent Interplant Relations Conference. "Advertising makes the first sale of any product, but the second sale is made by the factory," declared Mr. Litchfield. "Repeat business is built on the quality that the factory builds into the product, and the satisfaction the customer gets out of it," he added. The conference, which was in progress during the early part of October, was attended by several hundred representatives of Goodyear plants in Canada, Connecticut, and California.

Ohio Notes

Sales of rubber footwear and mechanical goods are reported excellent at The B. F. Goodrich Co.'s Akron factory. W. O. Rutherford, vice-president and sales manager, states that these departments are running at capacity, and business is considerably better than last year. Many workers have been transferred from other departments to take care of increased production in the footwear division.

The Cleveland office of Southwark Foundry & Machine Co. has been discontinued and new offices opened at 100 East South street, Akron, Ohio, in charge of F. H. Smith.

On October 2 the executives of the Mohawk Rubber Co., Akron, Ohio, assembled to watch the final steps in the production of the millionth tire manufactured by the company, the casing being a 34 by 7.31 balloon.

The Goodyear Tire & Rubber Co. has purchased for $25,000 the "Marathon" trade mark, depicting a Marathon runner, and will market a number of articles, principally for the export trade, under this name. The Marathon trade mark is registered in countries all over the world.

The sales department of Firestone Tire & Rubber Co., Akron, Ohio, announces that the first attempt to use balloon tires exclusively on a large bus fleet has been successfully tried out on a bus line between Dallas and Greenville, Texas. The fleet of 12 passenger Reo buses is equipped with Firestone full-size balloon tires. Since August 1, when the service was inaugurated, the tires have gone over the same route daily, without showing wear, it is stated. The buses make two round trips daily, over a distance of 53.5 miles.

During the entire year the plant of the Miller Rubber Co., Akron, Ohio, has been running at capacity, with the exception of July and August. At the present time full production is being maintained, and operations are being carried on under a three-shift schedule. William F. Pfeiffer is general manager.

The newly organized Flex-Hyde Rubber Co., which has taken over the Marathon Tire & Rubber Co., Cuyahoga Falls, will start operations in the near future. The Marathon plant and equipment was purchased this month for $100,001 by a group of Akron men from the trustee in bankruptcy. Mechanical rubber goods, men's belts, and imitation leather articles formerly sold under "Flex-Hyde" trade mark, will be manufactured. Frank B. Burch is president; George B. Wells, secretary; and George N. Graham, treasurer of the new company.

White rubber surfaced paving bricks for making traffic lines, instead of the usual signal system of paving, are being given a trial in Akron. The Goodyear and Goodrich companies have supplied the rubber tiles.

The rubber brick paving in front of the Goodyear factory that was laid several months ago is holding out well. City officials have indicated that this form of paving will be used on an extensive scale if the experiment proves successful.

An appeal has been made to the higher court at Cincinnati by the Lambert Tire & Rubber Co., Akron, Ohio, in its suit to prohibit alleged patent infringement on the process for manufacturing solid cushion tires. The Federal Court at Cleveland recently decided against the company, holding there has been no infringement of its patents.

As has been his custom for the past few years, J. K. Williams, president of the Williams Foundry & Machine Co., Akron, Ohio, has gone to his winter home in Florida, where he will remain until spring.

G. C. Mechlin, formerly superintendent of the McKone Tire & Rubber Co., is now serving in a similar capacity with the American Rubber & Tire Co., Akron, Ohio.

The Ohio Bell Telephone Co., after an exhaustive survey, predicts that the Northern Ohio section will become the American "Ruhr Valley," with great prosperity for the rubber, steel and allied industries. On account of growth of the rubber industry, the telephone company asserts that Akron's population will be nearly doubled in the next 25 years.

The Century Rubber Co., Wadsworth, Ohio, founded 18 months ago to manufacture toy balloons, is planning a factory addition to establish a rubber glove department. Business is reported to be nearly twice as large as last year.

The Farran-oid Co., Akron, Ohio, specializing in the manufacture of Farran-oid fan belts, has been reorganized for the purpose of manufacturing, purchasing, selling and dealing in and with products of which rubber is the constituent part, and all raw material entering into the manufacture thereof, including automobile accessories and parts of all kinds.

The officers of the organization, who are also the directors, are:

H. C. Farran, president; C. E. Cook, vice-president; J. L. McKnight, secretary; J. W. Jordan, comptroller; and V. I. Montenyohl, treasurer.

Formerly treasurer of the Toledo, Ohio, branch of the United States Rubber Co., 1790 Broadway, New York, N. Y., E. F. Busdieker is now in charge at Toledo of that division.

Production at the plant of the Denman-Myers Cord Tire Co., Warren, Ohio, considerably increased during the summer, the daily output then averaging 350 casings, while during part of this period the figure was still higher. H. F. Webster is general manager and secretary.

Following an increase of business the Worthington Ball Co., Elyria, Ohio, has begun an enlargement of its plant. The company, which specializes in the manufacture of golf balls, is headed by the following executives: G. C. Worthington, president; L. B. Fauver, secretary; and W. Cunningham, treasurer and general manager.

The Polson Rubber Co., 1783 East 11th street, Cleveland, Ohio, reports sales 45 per cent greater than for the corresponding period a year ago. The company will install additional equipment in anticipation of still greater sales during 1925. The output includes McWade automatically sealed tubes, IXL rubber heels, and various tire sundries.

The Rubber Trade in the Midwest

Midwest Notes

J. C. Wood, for twelve years associated with certain well-known rubber companies, will continue to serve in a selling capacity with the R. T. Vanderbilt Co., Inc., specialist in accelerators for the rubber industry and with offices at 50 East 42nd street, New York, N. Y. Mr. Wood's territory includes Indiana, Michigan, and part of Ohio.

The Union Tire Co. will continue to carry tires and tubes at its store at 154 South Illinois street, Indianapolis, Indiana, but has closed its wholesale establishment and offices formerly also maintained in Indianapolis at 122 South Capitol avenue. George M. Medlam is president of the organization.

The Airtite Decoy Co., 14 West Madison street, Danville, Illinois, has been capitalized at $50,000, and will manufacture rubber decoys. The following are the executives of the new company: Albert N. Ball, president; Alan MacDonald, vice-president; and J. E. McMillan, secretary and treasurer.

The P. K. Tire and Sales Co., 11647 Kercheval avenue, Detroit, Michigan, wholesales and retails tires, tubes, batteries, automobile accessories, etc. The concern, which expects to establish branch stores, is headed by the three following officers: P. Kenneth Dwyer, president; Joseph T. Weisenberger, vice-president; and Louise Dwyer, secretary and treasurer.

The Lincoln Tire Co., Inc., 808-812 East Monroe street, Springfield, Illinois, distributer of Falls tires and Evergreen tubes, recently increased its capital stock to $10,000, and is building in another section of Springfield an oil filling and tire service station. J. F. Murphy is president and J. T. Murphy is sales manager.

The Martin Tire & Rubber Co., Inc., 4417 Wentworth avenue, Chicago, Illinois, manufactures Martin punctureproof super balloon tires. The organization is allied with W. C. Martin & Co., manufacturer of the Martin Air-Cell tire, the two casings being produced and sold jointly by the same interests and parties. The incorporators and directors of the new organization are: M. C. Martin, president and treasurer; A. Painchaud, vice-president; and L. Keenan, secretary.

A. J. Sears has been appointed by The Goodyear Tire & Rubber Co., Akron, Ohio, as manager of its Chicago branch, while Arthur W. Ellis goes to St. Louis, Missouri, succeeding Mr. Sears. Both men have been serving the Goodyear organization in various capacities during the past twelve years.

The Utah Rubber Co., 160 South 10th West street, Salt Lake City, Utah, manufactures radio horns and other rubber products such as heels, soles, matting, radio panels, and a few other types of mechanical rubber goods. Executives include: David Neff, president; E. C. F. Hartman, vice-president; and Seth Chamberlin, secretary. A. E. Sidnell, the consulting engineer, was for six years connected with the Gates Rubber Co., Denver, Colorado.

The National Rubber Supply Co., which handles tires and tubes as well as certain lines of mechanical and molded rubber goods, has moved to Broadway and Champa streets, Denver, Colorado. For the past thirteen years this company has carried Miller tires, Continental bicycle tires, and Manhattan mechanical goods. In addition to the Denver store, the distributing organization maintains a branch establishment at 118 Motor avenue, Salt Lake City, Utah.

Due to increasing demands for individual vulcanizers and also for clincher and straight side bead flippers, the Utility Manufacturing Co., Cudahy, Wisconsin, has found it necessary to build an erecting shop and install some additional heavy machinery. Edward Hutchens is president of the organization.

The Mellinger Tire & Rubber Co., Grand avenue and Seventeenth street, Kansas City, Missouri, has opened a branch at Broad street and Ridge avenue, Philadelphia, Pennsylvania. This distributer of tubes and "Mellinger" cord tires, reports a probable 55 per cent increase in its business for the present year, as contrasted with the year previous, while prospects for 1925 are also said to be excellent. M. F. Bathin is sales manager.

The Auto Tire & Parts Co., Cape Girardeau, Missouri, jobber of automobile parts and accessories, is handling goods for all makes and models of cars, and has recently been enlarging its storage facilities and adding new lines to its stock. The organization reports a good business throughout its territory of southeastern Missouri.

The Rubber Trade on the Pacific Coast

From the large Pacific Coast distributing points come reports of good spring dating business in tires. Eastern and midwestern tire factory representatives state that orders on the deferred payment plan are even as high as 35 per cent over last November figures. Much to the relief of the entire trade, prices have been stabilized, for a while at least, and jobbers and others are assured that no further cut in prices can be expected, the recently enhanced cost of rubber, textiles, etc., being mentioned as the chief factor in price maintenance.

The Coast factories are meeting competition with eastern and midwestern concerns, largely due to improvement in manufacturing efficiency. Several factories have equipment which, although smaller, vies with the most progressive eastern concerns; and production is in charge of experts who have made good in some of the best of the older establishments. An aggressive sales policy is steadily widening the scope of distribution, so that, instead of confining themselves as heretofore to strictly Pacific territory, some of the tire makers are intrenching themselves even east of the Rockies.

Tire makers and dealers have been troubled during the past few months in adjusting business to price-cutting originating in the Midwest. Now, hose manufacturers and dealers especially in the garden variety, for which there is a market of about 4,000,000 feet in the coast field, have much to worry about. They had anticipated a season of good sales at fair profits, when a large hose concern directed its western representatives to cut prices, which were met by Coast hose makers and sellers, the result being that practically the whole season's output was sold at little more than the cost of manufacture in order to hold trade. One Coast factory has capacity for 2,500,000 feet of hose.

Eastern makers of rubber footwear and apparel can look for an early revival of trade in this territory. While last winter was comparatively dry, the present season is already quite wet and the chances are the winter's rainfall will be more than double that of last season. Reserve stocks are dwindling steadily, and large distributers are predicting an early shortage.

There is a good trade in oil well supplies but general mechanical rubber goods are quiet. Rubber flooring is in excellent demand, replacing linoleum to a considerable extent and being specified exclusively for numerous new stores, hotels, residences and office buildings.

Balloon tires are going rather slow. Buyers seemed to have expected too much of them, or were led to believe they outclassed standard cords in durability as well as in easy riding qualities. Dealers believe the coast field ideal for balloons, but they should have 6 instead of 4 plies and be sold for a little more than first-class cords. They suggest more conservative advertising, also.

Insulated wire prospects are better, and general trade is improving at nearly all points on the Coast, the southeastern outlook being particularly encouraging. The Southern California Edison Co. will soon be in the market for considerable supplies, inasmuch as it has set its construction budget at $25,000,000 for 1925.

Pioneer Rubber Mills Working Overtime

With several departments working overtime, the Pioneer Rubber Mills, Pittsburg, Contra Costa Country, California, is breaking production records. The management has for several years been striving to cut production cost to the minimum and is confident that it has now approximated that point. Practically all the old frame factory buildings have been replaced with modern concrete units arranged to economize routing of raw and finished materials, and numerous devices have been installed to improve quality and quantity production. In addition to reclaiming rubber and making various kinds of heavy and light hose, belting, packing, heels, and general mechanicals, the Pioneer Mills will, it is said, soon begin the making of hard rubber battery jars. George S. Towne is president. The main office of the company is now at 363 Sacramento street, San Francisco.

Los Angeles Goodyear-Zeppelin Plant

A Goodyear-Zeppelin plant may soon be added to the Goodyear concern in Los Angeles. That city is a particularly advantageous location for a dirigible balloon factory, according to Paul W. Litchfield, vice-president of the parent Goodyear company and who spoke recently on the subject before the city Chamber of Commerce, being introduced by A. F. Osterloh, vice-president and general manager of the California Goodyear company.

His company, Mr. Litchfield said, had already built about seventy dirigibles in Akron, and contemplates extension of its program to meet commercial needs on the Pacific Coast, which would include transportation between this country, the Far East, and Australia, the practicability of which is undoubted. Mr. Litchfield said that his company is planning on producing ships even double the size of the "Shenandoah" or the "ZR-3," recently renamed the "Los Angeles." In the latter city climatic conditions, he said, for building and testing heavier-than-air vessels were far better than in Akron, and he believed that a dirigible factory in Los Angeles would largely duplicate the success of the Goodyear tire factory there.

Pacific Coast Notes

The Keaton Tire & Rubber Co., which has its tires and tubes manufactured in a midwestern factory and does a big business on the Coast, is planning to establish a factory near San Francisco. C. C. Jack, well known in the tire trade in San Francisco, and for three years Keaton branch manager in Portland, has been appointed Pacific northwest manager. The president of the company is J. H. Keaton and the main office, 636 Van Ness avenue, San Francisco.

Goodyear Tire & Rubber Co. preferred stock has since the general election risen to 101. The company's factory in Los Angeles is not only the biggest manufacturing establishment west of Chicago, but also one of the largest tire factories in the country. The mid-month "ticket" for November was: 5,400 casings and 5,800 tubes daily. The working force has been considerably increased in the past few weeks.

V. A. Martin, Los Angeles branch manager of The B. F. Goodrich Co., has just returned from an extensive business trip covering the western territory between the Coast and Salt Lake City. He finds business prospects for 1925 exceptionally good, and present trade in his line much better than a year ago.

Frank C. Carroll, until recently manager of the Yokohama, Japan, Goodrich rubber factory, and formerly stationed at Los Angeles, is now conducting a successful Ford car agency in Fullerton, California.

Adolf Schleicher, president of the Samson Tire & Rubber Co., Compton, California, is visiting the larger tire and textile mills of the East and Midwest. The company reports orders for November as 50 per cent ahead of a year ago, and that its spring dating orders are already twice as many as for the same period in 1923. The company is running strong on large sizes of semi-balloon type, and has a large share of the business of equipping passenger stages on the Pacific Coast. It has just ordered an equipment for making 6-ply full balloon tires.

The Los Angeles branch of the Thermoid Rubber Co. has been moved from the Marsh-Strong Building to 124½ Glendale Boulevard. C. E. Johnson has resigned and Wm. H. Koons, heretofore in charge of the San Francisco branch, has taken charge of the southwest business, which is reported to be steadily expanding.

C. Fred Thompson, Los Angeles distributer of McLaren tires, and L. S. Woodruff, Pacific Coast representative of the McLaren concern, have been visiting President H. L. McLaren of the McLaren Rubber Co. at Charlotte, North Carolina. Sales in the southwest territory are said to have trebled in the past year.

Peck Brothers & Bartle, northwestern distributers for Mohawk tires, have leased storage space at 344-346 Burnside street, Portland (Rothchild Building), and have installed the most up-to-date equipment. In the same building are the Columbia Tire Co. and the Western Rubber Co.

The Samson Tire & Rubber Co. has leased a large storeroom at 92 North Broadway, Portland, from which will be distributed tires and tubes from its Compton, California, factory.

A big business in heels is being done this season by the Huntington Rubber Mills, Macadam and Nevada streets, Portland. Trade is good, too, in repair stocks, general mechanicals, and automobile accessories.

P. E. Myers has been appointed by the Kelly-Springfield Tire Co., 250 West 57th street, New York, N. Y., as manager of the company's branch at Seattle, Washington.

The Keaton Tire & Rubber Co., Los Angeles, California, is meeting with success in its sales of Keaton Non-Skid balloon casings, mounted on Firestone, Hayes, Jaxon, or Kelsey rims and wheels. William D. Smith is general manager.

Kelly-Springfield tires and a line of batteries and magnetos are being carried by Young & Chamberlain, 1126-36 Front street, San Diego, California. B. M. Young heads the organization.

The Oliver Tire & Rubber Works, 1467 S. Michigan avenue, Chicago, Illinois, which ten months ago established a branch at 406 W. Pico street, Los Angeles, California, has started a very extensive mail order—3 months' instalment, free tube with order—selling campaign on the Pacific Coast, which, it is said, is bringing a large volume of orders. Heretofore all tires (cords and fabrics) were made for the company by a midwestern factory and shipped to the Coast, but now the heavy freight charge is eliminated by having the tires made by a Pacific Coast factory.

The Rubber Trade in Canada

Prices of Tires, Garden Hose and Heels Reduced

A BIG reduction has been made in the prices of tires. With the heavy production in the United States, stocks increased and a large surplus resulted. While both the rubber and cotton markets were very firm, it was felt that the only way to reduce tire stocks was to reduce prices. This was done and the Canadian firms followed immediately. The reductions range from 4 to 20 per cent. Some manufacturers have not made the 20 per cent cut, 14 per cent being the limit. The reductions cover the different types and grades, including fabrics, cords, and balloons, and are larger on the smaller sized tires, with smaller cuts on the bigger sizes. Some of the companies have not made any reduction in tubes, while other manufacturers have reduced their tubes as well as tires.

Manufacturers of garden hose have issued new 1925 lists showing an all around reduction on both plain and corrugated hose, the new prices running from $.75 to $2 below the old ones. Quotations on November 15, were as follows:

RUBBER GARDEN HOSE

	100 feet		100 feet
Corrugated, ½ in.	11.50	Plain, 5/16 in., 3 ply	11.50
Corrugated, 5/8 in.	13.00	Plain, 3/8 in., 4 ply	12.50
Corrugated, ¾ in.	15.00	Plain, 3/8 in., 5 ply	13.00
Plain, ½ in., 3 ply	9.50	Plain, ¾ in., 3 ply	13.25
Plain, ½ in., 4 ply	10.50	Plain, ¾ in., 4 ply	14.25
Plain, ½ in., 5 ply	11.50	Plain, ¾ in., 5 ply	15.00

Above prices include sales tax. Corrugated hose less 5 per cent in full reels of about 500 feet. On all booking orders placed between October 15 and December 15 a special discount of 5 per cent will be allowed.

A price reduction has been made on rubber heels, the new prices ruling in the Montreal market being as follows: Men's, per dozen pairs, $2.10; women's, per dozen pairs, $1.70.

Better Footwear Sales Anticipated

The weather has been entirely too fine for rubber footwear sales and manufacturers have been hoping for cold, rough weather which would stimulate business and clean up the balance of the season's production in both light and heavy goods. Apparently the anticipated volume of trade has not been secured and some manufacturers expecting a heavy volume of rush sales are making up stock ahead. The bulk of the season's shipments have gone forward. Orders for sporting goods have been somewhat slow, but now leather stocks are cleaned up and retailers can anticipate the new season's requirements more intelligently. Building activity is fairly good considering the particular season of the year. Druggists' sundries sales are showing an increasing tendency.

Canadian Notes

The Goodyear Tire & Rubber Co. of Canada, Ltd., Toronto, has added heavy duty pneumatic cord tires to its regular line.

In the Canadian-Australian trade pact no concessions of practical benefit were granted to Canada's automobile industry. The tire industry failed to secure preferential treatment, due to the presence of two or three tire factories in Australia.

A. H. Wellein, formerly superintendent of the tire department of Ames Holden McCready, Limited, is now associated with Ames Holden Tire & Rubber Co., Ltd., Kitchener, Ontario, in charge of the factory.

Erne Holden, manager of the Ames Holden Tire & Rubber Co., Ltd., in Northern Saskatchewan, with headquarters at Saskatoon, recently underwent an operation for appendicitis. Last reports state that he is rapidly gaining strength and improvement in health.

W. B. Wiegand, general manager of Ames Holden Tire & Rubber Co., Ltd., Kitchener, Ontario, recently returned from Europe.

J. I. Frank Anthes, 591 St. Catherine street, West, Montreal, Canada, has announced that beginning November 1 his business will be conducted under the name of Anthes & Son. The company is acting principally as one of America's direct agents for standard white pigments manufactured in England. Mr. Anthes, Sr., has for fifteen years been associated with the rubber industry.

R. W. Ashcroft, advertising and promotion manager of the Ames Holden Tire & Rubber Co., Ltd., Kitchener, Ontario, was a recent trade visitor to Montreal. He reported business as steadily forging ahead.

The Regina, Saskatchewan branch of the Kaufman Rubber Co., Ltd., has removed to 1856 Broad street, in the heart of the retail district. Here stocks will be carried for quick service during the rush periods.

Evidence of great interest was shown the exhibit at the British Empire Exhibition at Wembley, England, of the Goodyear Tire & Rubber Co. of Canada, Ltd., Toronto. H. R. H. Princess Louise, granddaughter of Queen Victoria, and other members of her royal party made a very thorough examination of the Goodyear display in the Canadian Building.

Hugh Carson Co., Ltd., Ottawa, Ontario, has been appointed wholesale distributer for the Firestone Tire & Rubber Co. of Canada, Ltd., Hamilton, Ontario, for Ottawa and eastern Ontario.

There is a growing conviction among students of world industrial developments that Canada's educational system is producing too many white-collar graduates and not enough competent mechanics if she expects to hold a place in world markets. In a recent address C. H. Carlisle, vice-president and general manager of the Goodyear Tire & Rubber Co. of Canada, Ltd., Toronto, Ontario, predicted that Germany and France would soon be factors in the world's markets, and as Ontario at present exports nearly 50 per cent of her industrial production, he declared that we would have to face the problem of new competition from countries where wages are low and hours long.

G. W. Charles has been appointed vice-president and general manager of the Dominion Rubber System and will have charge of the footwear end of the business. George Bergeron, formerly Quebec division manager, has been promoted to the position of general sales manager. J. A. Robertson, formerly Ontario division manager, has been transferred to Montreal as Quebec division manager. J. A. Connor becomes Ontario division manager.

E. Franks, Saskatoon, Saskatchewan, representative of the Ames Holden Tire & Rubber Co., Ltd., has taken over all northern Saskatchewan territory. F. Garnett will sell Rhino footwear in Southern Saskatchewan, and has opened up a branch warehouse in Regina.

The Canadian Bicycle Dealers' Association recently held its seventh annual convention in Hamilton, Ontario. Two days were devoted to the conference, in which over one hundred dealer-members and representatives of the Canadian bicycle and tire industries were present. Inspirational and instructive addresses were given by D. E. Rogerson, sales manager of the bicycle division of the Dunlop Tire & Rubber Goods Co., Ltd., Toronto, who was re-elected on the directorate of the C. B. D. A. for 1925.

With this last Canadian letter for this year, may I quote Kipling, who says: "What good thing can I wish thee, that I have not wished before?" So to my many Canadian readers I pen these words, "To you and yours, from the writer, a very Merry Christmas." It's a greeting old as the joyous season; I can add nothing. I would take nothing away. It is my wish for you.

The Rubber Trade in Europe

Great Britain

With trade conditions in general showing an improvement, and in particular with the securing of better prices for crude rubber, both British producers and manufacturers are facing the future with greater confidence. The *Financial Times*, in commenting upon the brighter prospects for the industry, states that the world's rubber stocks have been reduced by more than 85,000 tons during the last two years, while due to the restriction scheme the Malayan rubber industry has during this period benefited to the extent of about $134,000,000. It is further stated:

"A critical and interesting stage has been reached in the rubber industry. The position, in a word, is that demand and supply are in a state of equilibrium and that it will not take much to tip the scale heavily in the direction of demand. The reduction of stocks and the natural increase of demand through the requirements of industry may soon disclose a pronounced shortage of rubber, with the result of a sharp rise in prices. Trade stocks as well as market stocks have been rapidly falling, and as the available supplies for the next three months at least will be anything but plentiful, higher prices appear to be in store."

Institution of the Rubber Industry

On October 6 a meeting of the London and District Section was held, Herbert Standring, vice-chairman of the section, presiding. Many of the members took part in a discussion following the reading of a paper by Edward Anderson on "Sulphur." The first annual general meeting of the Manchester Section was also held at the Textile Institute, Manchester, on October 16, when the election of officers took place. J. H. Mandleberg was chosen chairman of the Manchester Section for the ensuing session, H. W. Hatton vice-chairman, and J. Adamson honorary secretary. A paper entitled "Some Problems of the Rubber Industry" was read by Herbert Standring.

At the third annual general meeting of the Institution of the Rubber Industry, held November 3 at the Engineers' Club, Piccadilly, London, Sir Stanley Bois, chairman of the propaganda department of the Rubber Growers' Association, was unanimously elected president of the Institution for the ensuing year. At this session a paper was read by C. W. H. Howson on "Gutta Percha: Preparation and General Properties."

Cooperative Selling Measures Abandoned

As the suggestion made by Secretary Hoover for a system of cooperative buying has not materialized, there will be no further action taken in England regarding it, a statement to this effect having been made by the council of the Rubber Growers' Association. The introduction of any cooperative selling scheme as a means of further protection would be a tacit admission of the failure of the Stevenson measures, while at all events any decided change in policy at the present time would cause much disturbance throughout the industry. "Present conditions in the trade are so delicately adjusted that the efforts of all those who are in a position to influence them should be on the side of peaceful development, and in the direction of expanding the uses of rubber rather than in curtailing its production beyond the point that is essential to commercial salvation."

World's Rubber Consumption

At the recent annual meeting of the stockholders of Harrisons and Crosfield, Limited, H. Eric Miller, chairman of the organization, made some interesting remarks regarding the improved outlook for the rubber industry, giving also some important statistics. He estimated a world absorption of the commodity for 1924 of 435,000 tons, of which the United States would be accountable for about 300,000 tons. The world consumption during 1925 might be conservatively estimated at 450,000 tons, the existing stock being no more than sufficient for the normal working of the industry. Allowing for a hypothetical 30 per cent increase in native rubber from the Netherlands Indies, the output of the non-restricting areas, including wild rubber, could not be estimated at more than 190,000 tons. Hence at least 260,000 tons would be required from the restricted areas, and this represented about 65 per cent of their standard production under the scheme.

In the tabulation following, the important feature is the substantial and continuous increase in crude rubber consumption. The decline during 1919-20-21 is undoubtedly due to the introduction of the cord tire, with its markedly greater mileage capacity than the earlier fabric type.

WORLD'S CRUDE RUBBER CONSUMPTION

Consumption in	Tons	Percentage increase over previous year	Consumption in	Tons	Percentage increase over previous year
1910	85,000	..	1917	220,000	18
1911	90,000	6	1918	260,000	18
1912	95,000	6	1919	287,000	10
1913	107,000	13	1920	302,000	5
1914	125,000	17	1921	320,000	6
1915	150,000	20	1922	353,000	10
1916	187,000	25	1923	410,000	16

Olympic Motor Show

There was a large attendance at the Eighteenth Annual Motor Show held October 16 to 25 at Olympia, displays of balloon tires representing one of the leading features. Among the tire companies exhibiting were the North British Rubber Co.; British Goodrich Rubber Co., Limited; The Firestone Tire & Rubber Co., Limited; Pirelli, Limited; and the English branch of the Fisk Tire Co., Inc. Balloon tires, which were not seen at all in the 1923 exhibit, now are standard or optional on 41 per cent of all British models, and on 51 per cent of those under 120 cubic inches displacement.

Rubber Roadways, Limited

At the recent annual meeting of the board of Rubber Roadways, Limited, a report of much interest was read concerning the activities of the organization during the year 1923. Several small areas laid with rubber paving which were continuing to give satisfactory service were mentioned as being in Little St. Andrew street, Upper Saint Martin's Lane, Holborn, and Borough High street, Southwark, while Sir Stanley Bois, presiding, stated that donations had also been made for still further installations. Notwithstanding the fact that the rubber paving in Whitehall around the Cenotaph had proved unequal to the strain imposed upon it by the heavy traffic, the board has arranged for tests to be carried out in Borough High street with two other types of rubber block, one a rectangular smooth-sided block, and the other an all-rubber block (Cowper's patent). The first-named type has also been found entirely acceptable as originally laid on the road to Fresh Wharf, London Bridge. Other satisfactory examples of paving are the two platforms at Euston Station, the two rubber stairways at New Southgate Station, and the rubber stairway at the "Elephant and Castle." The board has recently concluded negotiations which will probably result in tests in various parts of the country of the "Gaisman" block, preliminary trials having warranted such extensions.

Rubber Goods at Shoe and Leather Fair

Some interesting exhibits of rubber goods were on view at the Shoe and Leather Fair, which was held at the Agricultural Hall, London, from October 6 to 10. Among the especially noteworthy

displays was that of the Rubber Growers' Association, with its comprehensive exhibit of crêpe rubber soles, for use not only on sport footwear but for many kinds of work shoes and heavy service as well. Other organizations having representative displays were the North British Rubber Co., the Hood Rubber Co., and the Dominion Rubber Co., Limited.

British Notes

C. W. Randall & Co., Limited, the only distributer in England of the products of the Hood Rubber Co., has recently opened a branch in Glasgow, Scotland, at 50 Wellington street. A. P. Brown, who is in charge of this new division, has had much experience in the rubber industry, and particularly in handling the Hood products.

After thirty-four years of loyal and devoted service to the interests of the Dunlop Rubber Co., Limited, L. M. Bergin has retired from its service, his resignation becoming effective December 31. Sir J. George Beharrell, who was Mr. Bergin's colleague, will continue as managing director.

P. E. Edwards, formerly connected with the engineering department of the Dunlop Rubber Co., Limited, has been appointed works manager of the Ajax Engineering Co., Birmingham. Mr. Edwards has had a wide experience in the modern methods of designing and manufacturing tire molds and rubber-making appliances.

Elaeis Plantations, Limited, has been registered with a capital of £50,000, and will grow in the Malay Peninsula and elsewhere palm trees, india rubber, gutta percha, balata, and other gums, tea, coffee, etc.

The number of persons in the English rubber industry reported on September 22, 1924, as unemployed was 6,618, or 11.4 of the total. The above figure included 3,783 males and 2,835 females. The average rate of unemployment over all the industries in Great Britain and Northern Ireland has been estimated at 10.8 per cent.

The new Pirelli balloon tires, which are known as "Superflex," have a beaded edge and an effective tread design of diamond blocks. These casings are manufactured in five sizes where a change of wheels is necessitated, and in several other sizes for the existing tire wheels.

Experiments by The B. F. Goodrich Co. in installing rubber linings for rotary grinding mills have proved entirely successful, the use of a special rubber compound known as "Linerite" having increased mill capacity by at least 15 per cent. Some months ago THE INDIA RUBBER WORLD published reports of similar installations.

Fibrok Products, Limited, has removed its business to larger premises at Higher Denham, Bucks. Production at the new plant began September 22. The company specializes in the manufacture of Fibrok, or fibrous crêpe.

Russia

According to bulletin No. 9 of the Russian Commercial Representation in Germany, the April production of the Russian rubber industry compares with that of the same month in 1923 as follows:

	April		March
	1923	1924	1924
Rubber footwear, 1000 pairs	832.4	325.4	656.6
Tires and Tubes, 1000	19.9	29.9	20.5
Belting, tons	52.2	41.4	52.9
Technical goods, tons	86.2	139.9	95.1
Surgical goods and toys, 1000 quintals	67.6	34.8	29.2
Rubberized fabric and webbing, 1000 square meters	31.7	37.	16.4
Value of all goods in 1000 rubles, pre-war prices	3243.8	2462.6	3032.6

It will be noticed that the manufacture of shoes fell off considerably during April, 1924. As a result of curtailed output and increased demand the considerable stocks are beginning to decrease and it is hoped that by the fall stocks will be normal. The number of workers employed in the Russian rubber industry in April was 9,379 against 9,432 in March of this year.

France

According to official statistics France exported the following amounts of rubber goods during the first half of 1924:

1924	Kilos	Francs
January	1,960,900	63,413,000
February	2,156,800	67,400,000
March	2,576,300	74,512,000
April	2,404,800	72,909,000
May	2,603,000	76,684,000
June	2,296,600	65,456,000
Totals	13,998,400	420,374,000

The chief articles exported during the above period were:

1924	Automobile Tires Kilos	Belting, Hose and Packing Kilos	Rubber Footwear Kilos
January	1,671,100	130,100	108,300
February	1,783,600	164,300	126,900
March	2,020,700	189,700	263,500
April	1,830,000	233,400	218,900
May	2,112,100	188,400	223,600
June	1,663,700	214,000	345,400
Totals	11,081,200	1,119,900	1,286,600

The most important buyers of French tires were:

	April Kilos	May Kilos	June Kilos	Second quarter of 1924 Kilos
Great Britain	432,800	292,200	303,500	1,028,500
Spain	207,800	156,200	198,200	562,200
Switzerland	194,500	179,900	124,800	499,200
Belgium	165,000	188,400	205,000	558,400
United States	86,200	147,000	154,800	388,000
Argentina	33,700	76,400	20,800	130,900
Morocco	29,500	67,700	46,200	143,400

F. Berguerand & Co.

The house of Berguerand was founded in 1855 by Felix Berguerand, who in that year introduced into France the manufacture of cut sheet, known as "English sheet." This material is used in the manufacture of nipples, belts, cushions, syringes, finger stalls, pessaries, gas bags, urinals, etc. Besides these articles, the firm manufactures tobacco pouches, surgical gloves, technical goods such as delivery and suction pipes, mark "Flexis," "Kipli," "Treflex," garden hose, fire hose, disks, joints, rings, gas pipes, etc., also stoppers, canules, injection tubes, hot water bottles, probes, bulbs, etc.

Since 1909 the concern, which has a factory at Vincennes and offices at 72, Rue des Archives, Paris, has become a company known as F. Berguerand & Cie.

Paul Jeantet & Co.

The story of the development of the Etablissements Paul Jeantet & Cie with factories at St. Claude-s-Bienne (Jura) and Gennevilliers (Seine), makes interesting reading.

The main industry in the St. Claude district has always been the making of pipes, which gives employment to about 6,000 persons. Most of these pipes are mounted with ebonite mouth pieces, which formerly were supplied by four German firms. Some English firms attempted to displace the Germans as well as certain French firms, but without success.

In 1912 the firm of Paul Jeantet & Cie was formed to manufacture pipe stems of ebonite. Later on, hard rubber pharmaceutical goods and insulators for magnetos were added. At the outbreak of the war the St. Claude factory had to close down but soon opened its doors again and devoted itself to supplying the army, besides continuing the output of pipe-stems. Owing to the precarious situation of the factory, from a military point of view, a new factory was opened at Gennevilliers in 1917, to specialize in insulations. This factory has since expanded considerably and produces all kinds of molded ebonite goods for pharmaceutical and electrical purposes. The St. Claude factory now specializes in the article for which it was originally destined.

Germany

Apparently the government has realized that some other method of bringing about lower prices had to be adopted than simply refusing credit and forcing manufacturers and dealers to sell cheaply, for it has recently reduced the existing sales tax of 9 to 10 per cent to 7-8 per cent; the gold discount has been cut to 8 per cent from 10 per cent; rail rates are down 10 per cent, as are coal prices.

These innovations are of too recent a date for their effect to be felt yet to any appreciable extent and in the meantime the same old conditions exist. Side by side with overproduction we have underselling, both the result of the inability of people to buy. This underselling has assumed such proportions as really to menace adherents to the prices fixed by the conventions. The Asbestos Convention has attempted to meet the cuts in prices made by outsiders by reducing the fixed rates 20 per cent, but it remains to be seen whether this will be sufficient to check the inroads of the outsider.

Incidentally, it should be noted that the conventions are now in a bad way. They seem to be able to flourish only when business is good. Not long ago the Verein Deutscher Gummireifenfabriken (Association of German Rubber Tire Factories) had to be dissolved because of the power of the outsiders and the impossibility of upholding the prices fixed upon.

The surgical hard and soft rubber branch also feels the influence of the outsider and recently the surgical convention felt it necessary to combat this by a revision of the gold mark price list and included much more atrractive discounts for wholesale and retail dealers.

In spite of all this, however, there is a feeling of optimism. The above mentioned cuts by the government, the Dawes plan, give hopes for the future. At any rate it is considered that although business is dull the general condition is much healthier than it was in the fevered period of inflation.

German Notes

At a meeting of the directors of the Continental Caoutchouc und Gutta-Percha Compagnie, Hannover, the gold balance was discussed and it was decided to mark down the share capital of 600,000,000 marks in the proportion of 15 to 1, thereby bringing down this amount to 40,000,000 marks. On the same basis, the management will now have at its disposal 10,000,000 marks of original shares instead of 150,000,000 marks. The preferential shares will appear on the gold balance with 100,000 marks and will keep this 20-fold voting power. These resolutions will be put before a general meeting to be held on November 26.

The firm Sylvain Witsenhausen & Co., Frankfurt-am-Main, has put on the market a series of novelties made of colored sheet rubber. These include napkin rings, napkin cases, book covers and flower pot covers. Besides these there is also a slip-over of transparent rubber sheet to be worn by little children over their clothes during meals or while traveling.

Gummiwarenfabrik Rud. Marx & Co., Hannover-Limmer, has produced a new kind of rubber door-mat. It is smooth on the under side and grooved on the upper surface to catch dirt and moisture and may be had in every possible color, especially colors that match linoleum or parquet floors.

A new stocking protector, claimed to be made of the finest rubber, is the product of A. Linsel & Co., Magdeburg. This protector appears to be a thin rubber slipper which goes over the stocking and is supposed to save wear on it. Furthermore, it keeps the feet dry and warm and prevents swelling of the feet as friction between stocking and shoe is impossible. The protector comes in all sizes for men, women and children.

To prevent the lid of tea-pots and the like from falling off during serving, and to catch the extra drops of liquid from the spout, a rubber cord with rubber drip-pad has been devised by Georg Stange, Leipzig-Gohlis.

British Technical Conference[1]

The Technical Conference was suggested to take advantage of the presence in England of scientific men from overseas visiting the recent British Empire Exhibition by arranging a meeting between scientific workers interested in both planting and manufacturing branches of the rubber industry for discussion of their common problems and difficulties.

The gathering was held under the auspices of the Rubber Growers' Association and the Research Association of British Rubber & Tire Manufacturers, and included about 60 representative technical and scientific men. Three papers were presented and discussed, of which the following are abstracts.

PLANTATION RUBBER FROM THE POINT OF VIEW OF THE MANUFACTURER. By B. D. Porritt. The author stated that any improvement in the quality of estate rubber is to be sought in the directions of increased cleanliness and uniformity and confined his remarks to the former point. The reasonably clean plantation rubber from the estates reaches the manufacturer contaminated with dust and wood splinters exceedingly difficult or impossible of complete removal. Surface contamination is due both to methods of packing and of handling at the docks. The latter require drastic revision; also the estate itself should assume responsibility for the quality of its output by placing its name on every sheet for export.

The ultimate exhaustion of cheap fuel, in the absence of a cheap substitute, seems likely to result in eliminating smoked sheet as a standard product. It remains a question whether the introduction of fillers into the latex prior to evaporation is generally practicable and superior to the present method of making sheets.

RESEARCH ON PLANTATION PARÁ RUBBER. By B. J. Eaton. The most satisfactory method of packing raw rubber on the estates and variability in the milling quality of the material are the problems at present agitating rubber manufacturers. Appropriate organization of the rubber producing industry is essential so that any specially recommended type of packing can be insisted on. The individual producer is not likely to improve conditions unless assured of a premium for his product. Cheaper and equally if not more efficient packing cases should displace those of wood. Two of the largest American users of rubber have their rubber in treated jute sacking. This packing method costs only half that of wooden cases and is greatly superior in cleanliness.

There has been considerable advance in the preparation of pale crêpe and smoked sheet grades in respect of uniformity. Whether the extra cost is justified is questionable. A rubber, like Hopkinson sprayed rubber, containing all the constituents of the latex, has properties or confers properties on the vulcanized product which are desirable.

THE CEYLON RUBBER RESEARCH SCHEME. The progress of work of this organization in cooperation with the Rubber Growers' Association in the study of diseases of rubber trees was outlined by Hon. F. A. Stockdale.

THE CONCENTRATION OF LATEX. Dr. E. A. Hauser, recognized as an authority on this subject, stated in discussion that while possible to bring latex down to a cream-like condition by adding certain dispersing substances all the processes which have reached this point have the great disadvantage that all the rubber in the original latex is never re-obtainable in the form of latex, the loss being about 10 per cent. There are various processes by which latex may be concentrated to the consistency of cream cheese and even to a water-free condition, like milk powder. The absolute failure of previous work in this direction is due to the extraordinary nature of the colloidal chemistry of latex. It is the most difficult colloidal system. Not every protective colloid will be of use in dealing with latex because of its extraordinary behavior.

[1]Report of Technical Conference, London, July 18, 1924.

The Rubber Trade in the Far East

Malaya

THE annual report of the Department of Agriculture of the Strait Settlements and the Federated Malay States for 1923 records many activities on behalf of rubber and other products. Experiments on methods of latex preservation demonstrated that ammonia was satisfactory although dangerous when the strongest commercial solution is used. It was found that latex containing ammonia gave a slower curing rubber.

Investigations are in progress on the following: the vulcanization of rubber with solutions of sulphur chloride with a view to evolving a new method for the laboratory examination of raw rubber; slab rubber; sprayed rubber; the effect of various constituents of the latex incorporated in raw rubber.

Investigations have been carried out on rubber mixing for soles, flooring, tiles and for sealing rings for tin cans used in packing pineapples. The cold vulcanization by chloride of rubber samples colored by the addition of organic dyestuffs to latex, was carried out for an estate.

Investigations on the extraction of gutta percha from leaves of the plant are nearing completion. It was found that the method of grinding had a marked effect on the yield. While an ordinary crêpeing machine ground the leaves very well, it later on proved impossible to separate the gutta satisfactorily. Grinding with edge-runners, similar to those used for oil seeds and cakes, was effective. A yield of about 2 per cent of gutta was obtained from fresh leaves from indigenous gutta. A sample of leaf gutta percha prepared locally proved on examination to be of good quality as regards the low content of non-gutta constituents.

The report on diseases shows that in certain districts pink disease was somewhat more prevalent but it is expected to be controlled effectively within a short time. Mouldy rot spread very considerably during the year. However, the trouble can be effectively and simply controlled at a reasonably low cost. *Fomes lignosus* is still fairly prevalent on young clearings from which the timber has not been removed. It was found that in cases where fields had been neglected when young this disease occasionally did serious damage in mature fields.

Bud-grafting is followed with interest but no practical work on the problems has been carried out.

Smuggling

Regarding the amount of smuggling that is going on between Malaya and the neighboring islands of the Dutch possessions conflicting opinions are expressed. This is all in tune with opinions on other matters here. Some writers wish to account for almost all the Dutch exports of native rubber as Malayan rubber smuggled out of the colony; others think that the amount of rubber smuggled is insignificant.

The truth probably lies between the two extremes, as usual, for recent reports show that the local preventive fleet is having a busy time chasing and capturing smugglers. However, the quantities of rubber found are small and could hardly affect the Dutch exports appreciably.

Restriction Statistics

The following statistics relating to restriction in Malaya have been supplied by the Controller of Rubber Exports:

1924	Total Exports Malaya Tons	Total Exports Restriction Area Tons	Total Imports Foreign Rubber Tons
March	22,294	14,020	8,269
April	20,551	10,759	7,909
May	19,674	13,597	7,259
June	18,084	13,370	7,435
July	21,670	13,780	9,777
August	22,133	16,989	9,777
Totals	124,406	82,515	50,426

DEALERS' STOCKS

	1924				
Singapore Island Penang	April Tons	May Tons	June Tons	July Tons	August Tons
	2,121	1,700	2,057	2,621	3,157
Totals	19,075	17,979	15,959	19,522	20,550

RUBBER FROM RESTRICTION AREA ON WHICH EXPORT DUTY WAS PAID DURING:

	1924				
	April Tons	May Tons	June Tons	July Tons	August Tons
Federated Malay States	5,869	7,916	7,549	7,862	9,585
Straits Settlements	1,324	1,583	1,642	1,705	2,081
Johore	2,531	2,805	2,829	2,789	3,512
Kedah	697	974	1,010	988	1,419
Kelantan	276	236	270	350	313
Trengganu	62	83	70	86	79
Totals	10,759	13,597	13,370	13,780	16,989

Stock afloat in harbor (August rubber declared in September) 619 tons. In the figures for imports of foreign rubber no allowance has been made for moisture in lower grade rubber.

Malayan Notes

A committee known as the Federated Malay States Rubber Propaganda Committee has been formed with Sir W. George Maxwell, K. B. E. C. M. G., as chairman. At a recent meeting of this committee the propagandist, Major Knox, was introduced and preliminary questions discussed. It was decided, among others, to confine the activities of the committee to Malaya, India and China for the present. A proposal to engage suitable men to visit the latter two countries to investigate openings for new uses for rubber, and a suggestion to offer prizes for ideas for new local uses for rubber, were referred to the executive committee.

Partial exemption from the provisions of the Export of Rubber (Restriction) Enactment has been granted for all purposes of export of manufactured rubber goods as follows: (A) Shoe soles, clog straps, mats and tires shall be deemed to have a rubber content of 33 per cent of their total bulk. (B) All other rubber goods whether wholly or partly made of rubber, shall be deemed to have a rubber content of 50 per cent of their total bulk.

"Manufactured rubber goods" here means articles finished and ready for use by the public without further treatment and in which the rubber has been subjected to such processes as render it economically unfit for further treatment as raw rubber.

At the Research Laboratory of the Rubber Growers' Association on Pataling Estate, Pataling, Selangor, H. C. Pinching delivered a lecture on sole crêpe and later on a demonstration of sole crêpe manufacture was given in the Pataling Estate Factory. Between 200 and 250 planters, merchants and others were present.

The entire output of the Cicely Rubber Estates Co., Limited, estimated at 480,000 pounds for the current year, will be manufactured into sole crêpe. Some 366,000 pounds will be standard while the balance will be second grade sole crêpe. The company has been able to effect forward sales for the bulk of the standard sole crêpe on very satisfactory terms.

Ceylon

We have had a little flurry here in connection with restriction. A merchant arrived from Penang and gave out anti-restrictionist views of the situation in Malaya. The *Times of Ceylon* considered the information well authenticated and made some rather frank statements regarding restriction. However, protests came from Malaya and certain Ceylon pro-restrictionists so that the Ceylon paper found it necessary to modify its previous remarks. As a matter of fact, the Penang merchant was not all wrong. There is undoubtedly strong feeling in certain quarters against restriction.

New Restriction Rules

The new restriction rules recently published give power to the Controller to reassess estates if he thinks their assessment is in excess of or less than their true productivity. The standard production assessed under this rule is to take effect from November first next following the date of the assessment.

The true productivity of an estate is defined as the quantity of rubber that can be produced under a normal system of tapping and that quantity is not to exceed a maximum of 320 pounds per acre. This seems to imply that the Controller may fix the maximum standard production at 320 pounds per acre, but since Ceylon at the time rejected the ruling providing for a maximum standard production of 400 pounds per acre which is in force in Malaya, it is hardly probable that the 320 pound maximum will be generally enforced in Ceylon now.

On the whole it is considered that the new ruling will not affect the output of Ceylon to any noticeable extent.

Colombo Rubber Traders Association

The annual meeting of this body was held recently at the Chamber of Commerce rooms. The report submitted includes various figures referring to the rubber industry.

During 1922, Ceylon exported 47,367 tons of rubber; in 1923, this amount fell to 37,112 tons, a decrease of 10,255 tons; during the first half of 1923 shipments were 19,184 tons against 16,088 tons, a drop of 3,096 tons. The quantity allowed for export in 1923 was 36,774 and for the first half of 1924 18,012 tons, so that restriction seems to be rigidly enforced in the island.

The quantities of rubber offered and average prices for top grades at local auctions during the last 5 years are as follows:

Year	Amount Tons	Average Prices Top Grades Rupees
1919	16,932	1.05
1920	16,107	.80
1921	16,689	.52
1922	17,948	.53
1923	14,628	.88
First half of 1923	7,295	.94
First half of 1924	7,646	.69

The approximate quantity of rubber in members' godowns at the end of each quarter from January 1, 1922 is shown below:

	Tons
1922—	
March 31	5,100
June 30	4,066
September 30	4,855
December 31	4,168
1923—	
March 31	3,655
June 30	2,940
September 30	3,420
December 31	4,613
1924—	
March 31	3,624
June 30	4,840

The total exports of rubber latex fell to 85 gallons during the first half of 1924 as compared with some 11,000 gallons in the same period of 1923.

India

A note issued by the director-general of Commercial Intelligence states that the number of rubber plantations in India in 1923 was 972 with a total area of 198,758 acres, as compared with 1,080 with an area of 191,267 acres in 1922. During 1923 new plantings on estates amounted to 4,244 acres, while 1,424 acres of old cultivation were abandoned, bringing the total planted area to 128,787 acres instead of 125,967 acres in 1922, or a net increase of 2,820 acres. Of the total area under rubber only 74,371 acres were tapped.

The distribution of the cultivated areas is as follows: Burma, 49 per cent; Travancore, 32 per cent; Madras, 9 per cent; Cochin, 7 per cent; Coorg, 2 per cent, and Mysore 1 per cent.

The total production of raw rubber during the year is put at 14,469,428 pounds (Hevea 14,378,854 pounds; Ceara, 39,938 pounds, and Ficus, 50,636 pounds) as against 11,912,950 pounds in 1922 (Hevea 11,895,530 pounds, Ceara 1,120 pounds and Ficus 16,300 pounds). The yield per acre of tapped area was 222 (209) pounds in Cochin; 202 (208) pounds in Travancore; 193 (194) pounds in Burma; 162 (160) pounds in Madras; 156 (100) pounds in Coorg; and 100 (32) pounds in Mysore, the figures for 1922 being shown in parentheses.

The daily average number of persons employed during 1923 was given as 36,900, of which 32,120 were permanent; this compares with 26,125 permanent and 4,401 temporary employes in the preceding year.

The total stock of dry rubber held on December 31, 1923, was estimated at 4,691,186 pounds, mostly Hevea, against 3,688,533 pounds at the same date in 1922.

British Indian exports of rubber by sea in 1923 came to 15 million pounds, which was an increase of 23 per cent over the exports of 1922. Almost half (48 per cent) went to the United Kingdom, 24 per cent to Ceylon and about 13 per cent each to America and Straits Settlements. Nearly 58 per cent of the rubber was shipped from Madras and 41 per cent from Burma.

Netherlands East Indies

Government Rubber Estates

By the end of 1923, the government had 15 estates with a total planted area of 11,993 hectares, of which 9,597 hectares were under Hevea, and 1,348 hectares under gutta percha. The productive areas under rubber and gutta percha were respectively 87.2 per cent and 78.6 per cent of the planted areas. The output amounted to 2,651,771 kilos of rubber and 109,346 kilos of gutta percha. The production of Hevea increased by more than 29 per cent and that of gutta percha by over 9 per cent as compared with the ouputs of the previous year.

The measures taken for disposing of the gutta percha were very successful. The improved method of preparing it, by which the content of dirt was reduced to one-fourth of that in previous years, resulted in its being more extensively used in the cable industry so that interest in the product was increased among buyers.

Native Rubber

A rubber planter discusses this topic from a new angle in a local paper. He points out that only a few people know that in Singapore there is a rich Chinese who has a rubber factory capable of reworking 60,000 kilos of native rubber per day. This rubber comes from Djambi; Palembang is not included.

Thus, this one factory in Singapore works 1,800,000 kilos a month or 21,600,000 kilos of Djambi rubber per year. The quantity of rubber from other parts is not known but is assumed to be twice as much. From this and the yielding capacity of native trees and the number of days they are known to tap, the planter deduces that the number of trees owned by the natives must be in the neighborhood of 54 millions, a figure which curiously enough corresponds with that given by the former director of agriculture, Sibinga Mulder.

Taking further into consideration what F. T. P. Waterhouse recently said about the expansion of native plantings, the planter feels inclined to be pessimistic about European rubber. But his standpoint is this: the Singapore manufacturer is interested in the growth of native rubber and the size of his factory is considered proof that he supports it, and incidentally cooperates in helping restriction to be maintained.

Dutch East Indies Notes

In July, 1924, shipments of latex from Medan totaled 658,000 kilos. This is about twice as much as was expected from here during the preceding five months altogether. The sudden increase seems to be unaccountable.

The N. V. Cultuur Mij. Bangasinga has just been established to take over and continue the exploitation of the rubber estate Tjibangasinga in the district Pameungpeuk, Preanger, Java.

Recent Patents Relating to Rubber

The United States

Issued* October 21, 1924

NO. 1,512,044 Casing for tire valve stem. W. R. Boyer, Wilkes-Barre, Pennsylvania.

1,512,081 Tire blow-out boot. J. Bordas, Miami, Florida.

1,512,164 Demountable resilient annulus for use in tire casings. E. O. Fowler, Birmingham, Alabama.

1,512,218 Arch supporter. E. L. Goldsmith, assignor to F. T. Cutshaw, both of Indianapolis, Indiana.

1,512,278 Tire casing spreader. L. L. Dickman, College View, Nebraska.

1,512,451 Brake lining. C. W. Brown, Nashville, Tennessee.

1,512,492 Toy balloon parachute. T. D. Segeberg, Somerville, Massachusetts.

1,512,563 Inflatable artificial limb. A. Roberts, Washington, Pennsylvania.

1,512,645 Dust cap for tire valves. W. A. Smith, assignor of one-half to M. A. M. Smith, both of San Angelo, Texas.

1,512,662 Pneumatic dust cap. F. Atkinson and J. Ross, both of New York, N. Y.

1,512,796 Tire bead reinforcement. R. C. Pierce, Belleville, New Jersey, assignor to J. R. Gammeter, Akron, Ohio.

1,512,858 Rubber-and-metal heel. A. E. Peckham, Grand Rapids, Michigan.

Issued* October 28, 1924

1,512,899 Rubber-lined mastoid bandage. Max Beilock, New York, N. Y.

1,513,037 Rubber storage battery box. A. V. Douglas, Paris, Kentucky.

1,513,147 Tobacco water-vacuum pipe. N. D. Zahariadis, San Francisco, California.

1,513,204 Inside tire cord patch. F. C. White, Mason City, Iowa.

1,513,520 Brassiere employing elastics. W. E. Pruzan, New York, N. Y.

1,513,522 Sheet rubber trousers support. J. E. Ross, Kansas City, Missouri.

1,513,701 Sanitary apron. H. A. Fine, College Point, New York.

Issued* November 4, 1924

1,513,740 Combined automatic air pressure equalizer, low pressure alarm, and automatic cut-off for plural pneumatic tires. W. H. Brown, Pasadena, California.

1,513,762 Rubber heel reinforcement. A. J. Quist, Mount Jewett, Pennsylvania.

1,513,770 Tire boot. D. E. Swartz, assignor to Swartz Brothers, all of Chicago, Illinois.

1,513,773 Candy-container ball with elastic return line attached. S. Thompson, Cleveland Heights, Ohio.

1,513,843 Bathing suit with inflatable belt. A. Meffert, New York, N. Y.

1,513,864 Air-cooled brake lining. C. D. Schmidt, Jamaica, New York.

1,513,896 Rubber brush. C. A. Don, London, England, assignor to Frances Maud Cousineau, Toronto, Ontario, Canada, and London, England.

1,514,152 Sponge rubber ear cushion for telephone receivers. H. Gernsback, New York, N. Y.

1,514,218 Brassiere with elastic sections. S. T. Metz, Jamaica, assignor to Treo Co., Inc., both of New York, N. Y.

1,514,435 Inflatable swimming appliance. L. C. Chatham, San Diego, California.

Issued* November 11, 1924

1,514,692 Resilient heel. M. D. Goldman, Tome, and H. A. Golden, Brooklyn, both in New York.

1,514,790 Clamp for holding nipples upon nursing bottles. J. R. Range, Rapid City, South Dakota.

1,514,864 Rim for vehicle tires and wheels. W. A. Shuler, New Orleans, Louisiana.

1,515,149 Storm suit. A. L. Cohen, Milwaukee, Wisconsin.

1,515,356 Rubber corner bumper. A. E. Moon, Akron, Ohio, assignor to The B. F. Goodrich Co., New York, N. Y.

1,515,453 Storage battery. T. A. Willard, Cleveland Heights, assignor to Willard Storage Battery Co., Cleveland, both of Ohio.

1,515,467 Pillow telephone with inflatable casing. C. H. Draving, Philadelphia, Pennsylvania.

*Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

Granted August 12, 1924

242,070 Pneumatic tire. A. F. Bosse, Iroquois Falls, Ontario.

242,168 Combination sectional rim and tubeless tire. The Harloe Tire Co., assignee of 49 per cent, and C. Clevenger assignee of 51 per cent of the interest, all of Winchester, Virginia, U. S. A.

Granted October 21, 1924

243,781 Syringe. F. S. Parrigin, Martin, Tennessee, U. S. A.

243,859 Dirigible nose cup. The Goodyear Tire & Rubber Co., Akron, Ohio, assignee of R. H. Upson, Detroit, Michigan, both in U. S. A.

243,916 Channel rubber runway for slidable windows. W. W. Metzger, Detroit, Michigan, U. S. A.

Granted October 28, 1924

243,951 Anti-rattler for automobile hoods. H. G. Jorgensen, Erie, Pennsylvania, U. S. A.

244,044 Rubber cushion connection for vehicles. The Rubber Shock Insulator Co., Inc., assignee of F. L. Pilcot, both of New York, N. Y., U. S. A.

244,069 Elastic trouser supporter. J. Kurlander, assignee of Charles Kurlander, assignee of Wilhelmina Leux, all of St. Louis, Missouri, U. S. A.

Granted November 4, 1924

244,143 Inflatable rubber air cushion. H. Morley, Manchester, Lancaster, England.

244,185 Pneumatic tire and wheel. C. K. Welch, Coventry, Warwick, England.

244,189 Toy gun employing elastic band. R. H. Williamson, Goodman, Wisconsin, U. S. A.

244,199 Cushion tire. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of G. F. Fisher, Roselle, New Jersey, U. S. A.

244,200 Collapsible last. The Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec, assignee of P. D. Babcock, Milford, Connecticut, U. S. A.

Granted November 11, 1924

244,275 Tire valve mechanism. T. C. Mahon and E. M. Leflufy, both of Vancouver, British Columbia, Canada.

244,382 Pneumatic tire. The Goodyear Tire & Rubber Co., assignee of H. A. Brittain, both of Akron, Ohio, U. S. A.

244,383 Pneumatic tire. The Goodyear Tire & Rubber Co., assignee of W. E. Shively, both of Akron, Ohio, U. S. A.

The United Kingdom

Published October 15, 1924

220,679 Rubber paving block. G. O. Case, 7 Idol Lane, Great Tower street, and Novocretes, Ltd., 1 Regent street, both in London.

220,689 Rubber-sheathed electric cables. F. H. Broomfield, 69 Taylor road, Wallington, Surrey, and N. J. Austin, 37 Carholme road, Forest Hill, London.

220,695 Combination sock and arch support comprising sheet sponge rubber faced on one side with thin leather. Thornley & Booth, Ltd., and S. Thornley, Boston Mills, Hyde, Cheshire.

220,874 Tubeless pneumatic tire. K. Schragin, 30 Alexanderstrasse, Berlin.

220,885 Adjustable jar cover with rubber washer. J. R. Jones, Plas Cemlyn, Cemaes Bay, Anglesey.

220,914 Necktie employing elastic. A. Saens, 23 Lyndale avenue, Finchley road, London.

220,915 Swimming glove with elastic bands. W. H. Stephens, Garden City, Cairo.

Published October 22, 1924

220,933 V-shaped strip of rubber to preserve the crease in trousers. H. Colet, 85 Rue d'Aboukir, Paris, France.

221,064 Plywood sole with vulcanized rubber tread. J. E. M. Cooke, 18 Market Square, Stafford.

221,075 Single-tube pneumatic tire. A. Whiteway and C. Macintosh & Co., Ltd., Cambridge street, Manchester.

221,092 Rubber scrubbing brush. W. H. Phipps, 10 Worcester Terrace, and G. I. Fry, 19 Oakfield road, both in Clifton, Bristol.

221,117 Tennis ball. Slazengers, Ltd., and N. G. Groves, Laurence Pountney Hill, Cannon street, London.

221,131 Armored tire. P. Molloy, 111 Hulton street, Moss Side, Manchester.

221,156 Rubber sole and heel. M. Karman, 7 Veres Pálné Utca, Budapest.

221,168 Table game employing rubber cushions. B. V. Douglass, 149 Drury Lane, Derby.

Published October 29, 1924

221,204 Sponge rubber bathing costume. E. D. L. A. Desmas, Chateau de Therbe, near Savenay, Loire Inferieure, France.

221,237 Rubber-covered electric cables and conduits. E. A. Bayles, The Oaks, and British Insulated & Helsby Cables, Ltd., both in Helsby, Cheshire.

221,265 Spirit lamp with rubber covered sleeve. L. Javouhey, 2 Honduras street, Clerkenwell, London.

Chemical Patents will be found on pages 154-155, Machinery and Process Patents on pages 158-159

221,273 Piston packing for rotary engines. P. Christlein, 10 Heinstrasse, and K. Werner, Eibach, both in Nurnberg, Germany.

221,330 Security band for straightside tires. A. Whiteway and C. Macintosh Co., Ltd., Cambridge street, Manchester.

221,331 Reinforcement for tires. A. Whiteway and C. Macintosh Co., Ltd., Cambridge street, Manchester.

221,361 Pneumatic tire pressure gage. W. R. Donaldson, 319 West Uilletta street, Phœnix, Arizona, U. S. A.

221,372 Rubber checking device for looms. R. Bruneau, 239 Rue du Faubourg de Roubaix, St. Maurice, Lille, France.

221,457 Tubeless pneumatic tire. E. W. Wynne and K. T. Hardman, 3 Cable street, Liverpool.

221,458 Rubber bag for storing furs, etc. M. Krantz, 10 Wetherby Terrace, Old Brompton road, London.

221,467 Tread for twin tires. L. Renault, 15 Rue Gustave Sandoz, Billancourt, Seine, France.

221,472 Rubber springs for motor vehicles. International Motor Co., 25 Broadway, New York, N. Y., U. S. A.

New Zealand

Published September 18, 1924

51,237 Pneumatic tire. A. A. Holle, 60 Oxford Terrace, Hyde Park, London, England.

52,286 Tire gaiter. J. Howard, 169 Dee street, Invercargill.

52,520 Rubber inflation and teat-cup protector. M. J. O'Connell. Clandeboye.

Published October 2, 1924

50,917 Milking machine teat-cup. L. B. Dougherty, 19 Wellington street, Hamilton, East.

51,395 Baby soother. The Holsem Soother Co., Ltd., Verco Buildings, North Terrace, Adelaide, South Australia.

52,006 Finger-stall toothbrush with rubber bristles. L. G. Barton, National Bank Buildings, Gladstone Road, Gisborne.

52,106 Heel pad. G. S. Marshall and Hector C. Marshall, both of Burnley, Palmer and Murphy streets, Richmond, Victoria.

52,107 Laminated heel pad with rubber member. G. S. Marshall and H. C. Marshall, both of Burnley, Palmer and Murphy streets, Richmond, Victoria.

52,228 Teat-cup mouthpiece. N. J. Daysh, Russell street, Palmerston, North.

Germany

Design Patents Issued With Dates of Issue

882,807 (August 21, 1924). Heel cushion, Baeumcher & Co., Dresden.

882,830 (February 2, 1924). Bathing shoe of milled rubber sheet. Continental Caoutchouc und Gutta Percha Compagnie, Hannover.

882,855 (July 19, 1924). Springs embedded in rubber or similar elastic material. Dr. Josef Deiters, Münster i. W.

882,869 (July 26, 1924). Non-skid solid tire. Gummiwerke Fulda, A. G., Fulda.

882,909 (August 18, 1924). Elastic knee-pads for motor-cyclists. Continental Caoutchouc und Gutta Percha Compagnie, Hannover.

883,045 (August 22, 1924). Rubber sole. Gebrüder Bandekow, Berlin.

883,099 (July 9, 1924). Belt and conveyor band of rubber or rubberized fabric. Franz Clouth, Rheinische Gummiwarenfabrik, A. G., Köln-Nippes.

883,109 (July 25, 1924). Tube protector for pneumatic tires. Jakob Krämer, Niederwürzbach.

883,208 (July 24, 1924). Sponge rubber seat. William Sachs, Lessingstrasse 33, Berlin.

883,290 (August 25, 1924). Invalid mattress of wedge-formed sponge rubber. Uebersee-Gummiwerke, A. G., Wandsbek.

883,291 (August 25, 1924). Sheet for invalids and infants. Uebersee-Gummiwerke, A. G., Wandsbek.

883,292 (August 25, 1924). Collar for bed-pan or annular air-cushion. Uebersee-Gummiwerke, A. G., Wandsbek.

883,293 (August 25, 1924). Compress. Uebersee-Gummiwerke, A. G., Wandsbek.

883,296 (August 26, 1924). House slipper or gymnasium shoe of fabric with crude rubber tread surface. Firma August Glöckner, Worms.

883,298 (August 26, 1924). Eraser. Otto Franz Preuss, Mendelssohnstrasse 17, Hamburg.

883,318 (July 21, 1924). Rubber ball with raised design. W. Ebmeier, Sonnenbergerstrasse 48, Wiesbaden.

883,354 (August 11, 1924). Rubber regulator of water-flow. Wilhelm Klotz, Schützenstrasse 64, Düsseldorf.

883,390 (August 25, 1924). Ear protecting pad and pillow. Uebersee-Gummiwerke, A. G., Wandsbek.

883,391 (August 25, 1924). Collar for use in hair-dressing. Uebersee-Gummiwerke, A. G., Wandsbek.

883,404 (October 30, 1922). Arm-band. Ajax Gummiwebwaren, A. G., Barmen, W.

883,430 (August 4, 1924). Hollow rubber tire without valve or tube. Johann Engels, Grevenbroich.

883,487 (August 25, 1924). Cuff for sufferers of rheumatism and varicose veins. Uebersee-Gummiwerke, A. G., Wandsbek.

883,488 (August 25, 1924). Elastic bandage for plaster casts. Uebersee-Gummiwerke, A. G., Wandsbek.

883,640 (August 12, 1924). Rubber disks for furniture. Wilhelm Hochgräbe, Bergstrasse 4, Hannover.

883,773 (August 25, 1924). Inserts for umbrella stands. Uebersee-Gummiwerke, A. G., Wandsbek.

883,783 (August 26, 1924). Carpet, mat or runner of rubber. Vulkan Gummiwarenfabrik Weiss & Baessler, A. G., Leipzig-Lindenau.

883,819 (July 15, 1924). Sanitary bandage. Hans Kaufmann, Eierstrasse 7, Stuttgart.

Germany

Patents Issued, With Dates of Issue

403,617 (November 15, 1923). Fittings for footwear with rubber heels. Jakob Bahret, Forstrasse 135, Stuttgart.

404,051 (August 8, 1923). Rubber sole. Marcel Karman, Budapest; represented by: R. Schmehlik and C. Satlow, Berlin, S. W. 61.

404,217 (October 18, 1922). Solid tire. Edward Brice Killen, London; represented by: Dr. R. Geissler, Berlin S. W. 11.

404,218 (November 10, 1922). Cushion tire. Lawrence Orren Mitchell, Kansas City, United States; represented by: Dr. C. Landeskroener, Waisenhausstrasse 29, Dresden.

404,302 (April 20, 1922). Rubber plaster. Joseph Banks Hilliard, Glasgow, Scotland; represented by: Dr. G. Döllner, M. Seiler and E. Maemecke, Berlin S. W. 61.

404,357 (May 6, 1923). Valveless suction and pressure syringe. Louis Jubé, Paris; represented by: K. Walther, Berlin-Friedenau.

404,358 (December 12, 1923). Hand spray for liquids and powders. Frank Morgan Howe, New York; represented by: R. Geissler, Berlin, S. W. 11.

404,359 (April 10, 1924). Inhaler with rubber parts. H. Fischer & Co., Frankfurt-am-Main.

Trade Marks

The United States

Two Kinds of Trade Marks Now Being Registered

Under the rules of the United States Patent Office, trade marks registered under the Act of February 20, 1905, are, in general, fanciful and arbitrary marks, while those registered under the Act of March 19, 1920, Section 1 (b), are non-technical, that is, marks consisting of descriptive or geographical matter or mere surnames. To be registered under the latter act, trade marks must have been used for not less than one year. Marks registered under this act are being published for the first time when registered, any opposition taking the form of an application for cancellation.

Granted October 21, 1924, Act of March 19, 1920, Section 1(b)

190,779 The word LONG-WEAR underlined and passing through a representation of a tire—pneumatic tire casings and tubes. International Rubber Co., of America, Anderson, Indiana.

Granted October 28, 1924, Act of February 20, 1905

190,870 Representation of a triangle with the inscription: 1860, T. P. A. P. M. C. НЕТЕРБУРТЬ.—packings, pneumatic tires, inner tubes, tire patches, and belting, made wholly or in part of rubber. Société Francaise Treugolnik, Levallois-Perret, Seine, France.

190,903 The letters P-D arranged so that the D is within the loop of the P—brake linings and clutch facings. The P-D Auto Parts, Inc., Meriden, Connecticut.

191,029 On a background distinctively outlined and shaded to indicate green color the words: THE WALKER SHOE FOR MEN—shoes made of leather, rubber, fabric or any combination of these. Walker Shoe Co., Cincinnati, Ohio.

191,039 "SEE MORE TROY SHOES"—shoes made of leather, rubber, fabric, or combinations thereof. Seymour Troy & Co., Inc., New York and Brooklyn, N. Y.

Granted October 28, 1924, Act of March 19, 1920, Section 1(b)

191,064 TWIN CITY—automobile tires and tubes. Blekre Tire & Rubber Co., St. Paul, Minnesota.

191,101 DANIEL, in large capitals, and under it in smaller letters the word SPIRAL—rubber packing. Quaker City Rubber Co., Philadelphia, Pennsylvania.

191,110 "CAVENDISH"—rubber nipples. Cavendish Co., Boston, Massachusetts.

Granted November 4, 1924, Act of February 20, 1905

191,229 No. 66 E H—tires made wholly or partly of rubber. The Fisk Rubber Co., Chicopee Falls, Massachusetts.

191,230 No. 66—tires made wholly or partly of rubber. The Fisk Rubber Co., Chicopee Falls, Massachusetts.

Granted November 4, 1924, Act of March 19, 1920, Section 1(b)

191,385 STOPS-IT—preparation for punctures in tires. T. A. Freed, trading as I. X. L. Tire & Supply Co., Allentown, Pennsylvania.

191,387 ESSEX—rubber cement. Essex Rubber Co., Inc., Trenton, New Jersey.

191,388 VACUUM CUP—rubber tires for vehicles. Pennsylvania Rubber Co., Jeannette, Pennsylvania.

Granted November 11, 1924, Act of February 20, 1905

191,483 The words VITEX ELASTIC separated by a space—narrow fabrics, namely, elastics. Milton H. Biow, New York, N. Y.

191,538 GENASCO, in line-shaded letters—mineral rubber. The Barber Asphalt Co., Philadelphia, Pennsylvania.

191,539 Representation of a triangle, shaded, at the apex of which is a figure of Father Time with his sickle standing above a representation of the globe, within the annular border surrounding which is the inscription: GENASCO THE STANDARD OF EXCELLENCE; at either side of the globe is a figure, one hurling a thunderbolt at the earth and the other sending a dart of lightning; beneath the whole and serving as a base for the two figures is a very narrow parallelogram bearing the words: WITHSTANDS THE TESTS OF TIME—mineral rubber. The Barber Asphalt Co., Philadelphia, Pennsylvania.

191,561 STAG—solid, semisolid, and pneumatic tires and inner tubes. The Republic Rubber Co., Youngstown, Ohio.

Granted November 11, 1924, Act of March 19, 1920, Section 1(b)

191,653 GOODYEAR—rubber tiling. The Goodyear Tire & Rubber Co., Akron, Ohio.

191,657 THE TWIST THAT DOES IT—piston rings. Torsion Test Piston Ring Corporation, Newark, New Jersey.

The Dominion of Canada

Registered

36,430 EXELO—rubber reducing corsets, corset waists, brassieres, etc. American Lady Corset Co., Inc., Detroit, Michigan, U. S. A.

36,431 VOGUE—rubber soothers for infants. MacLean, Benn & Nelson, Ltd., Montreal, Quebec.

36,526 Elliptical frame containing the representation of a paint brush transversely therein, a longitudinal crossbar in the center thereof containing the words: RUBBER SET, and a border around the edge of the frame, divided by the paintbrush and the crossbar and containing the words: CANADA BRUSH CO., LIMITED above, and the words: STRAIGHT COMPRESSION below—brushes of every description. Canada Brush Co., Ltd., St. John, New Brunswick.

36,542 SOEZE, printed horizontally and perpendicularly in white letters so as to form a white cross on a black background, the cross being symbolical of the first two words of the company's name—mending fluid. White Cross Rubber Co., Ltd., Victoria, British Columbia.

36,582 Thunderbolt—tire patch. F. J. Hagerling, St. Louis, Missouri, U. S. A.

The United Kingdom

Published October 15, 1924

131,654 TINDECK—Printers' blankets. Tingue, Brown & Co., New York, N. Y.

132,183 TAURUS—machine belting. The India Rubber, Gutta Percha & Telegraph Works Co., Ltd., 106 Cannon street, London, E. C. 4.

450,820 VAKORK—rubber bottle stoppers. Vernon Sidney Wright, trading as Vernon Wright & Co., 292 High Holborn, London, W. C. 1.

451,036 VULCANIUM—electrical insulating substance included in Class 4. The North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh, Scotland.

451,134 STALAM—India rubber and gutta percha goods exclusively in Class 40. Stanley Lambert, Hillsboro, St. Luke's Park, Torquay, Devonshire.

451,237 LASTRAND—elastic webbing for use in manufacture of corsets. F. C. Savage & Sons, 5 and 6 Queen's Row, Camberwell Gate, London, S. E. 17.

450,740 KENDAR—rubber and gutta percha goods exclusively in Class 40. John Barker & Co., Ltd., 83 Kensington High street, London, W. 8.

451,220 Within a circle the letters R I L arranged in a monogram—raw or partly prepared vegetable, animal, and mineral substances used in manufactures exclusively in Class 4. Rubber Industries, Ltd., Downham Mills, Chesnut road, Tottenham, London, N. 17.

451,594 Representation of a brindle bull dog standing on top of a closed safe—instruments, apparatus and contrivances, not medicated, for surgical or curative purposes, but not including dental compositions or similar goods. T. Horton, 34 Victoria street, Merthyr Tydfil, Glamorganshire.

Designs

The United States

Issued* October 21, 1924

65,796 Pneumatic tire tread. Term 14 years. H. S. Berlin, assignor to The Victor Rubber Co., both of Springfield, Ohio.

65,797 Pneumatic tire tread. Term 3½ years. P. B. Bosworth, assignor to The Victor Rubber Co., both of Springfield, Ohio.

65,808 Tire. Term 7 years. E. G. Hulse, assignor to Kelly-Springfield Tire Co., both of Cumberland, Maryland.

65,809 Tire. Term 14 years. E. G. Hulse, assignor to Kelly-Springfield Tire Co., both of Cumberland, Maryland.

65,820 Tire. Term 14 years. T. C. Marshall, Mount Savage, and E. G. Hulse, Cumberland, assignors to Kelly-Springfield Tire Co., Cumberland, all of Maryland.

65,831 Tire tread. Term 3½ years. H. D. Reichard, Akron, Ohio.

65,832 Tire. Term 14 years. I. J. P. Remark, assignor to The General Tire & Rubber Co., both of Akron, Ohio.

Issued* October 28, 1924

65,846 Tire tread. Term 14 years. J. D. Comstock, Chester, West Virginia.

65,850 Tire tread. Term 14 years. H. B. Constantin, assignor to C. Kenyon Co., Inc., both of Brooklyn, New York.

65,856 Tire. Term 14 years. M. A. Dreher, assignor to Morgan & Wright, both of Detroit, Michigan.

Issued* November 4, 1924

65,894 Tire casing. Term 3½ years. R. D. Belden, assignor to Madison Tire & Rubber Co., Inc., both of Buffalo, New York.

65,796 65,797 65,808 65,809 65,820 65,831 65,832 65,846 65,850 65,856 65,894 65,924 65,946 65,984 65,987

451,496 SORBO—all goods in Class 4, except dyes and similar products. Sorbo Rubber-Sponge Products, Ltd., College Hill Chambers, 23, College Hill, London, E. C. 4, and Sorbo Works, Woking.

Published October 22, 1924

450,138 REDONO—goods of rubber and gutta percha exclusively in Class 40. Repton Fabrics Co., Ltd., 234 Corn Exchange Buildings, Manchester.

450,340 Representation of a canopied bed, across which are the words: THE BEDCOSY; below this the firm name, the whole being enclosed within border lines—rubber water bottles. The North British Rubber Co., Ltd., Castle Mills, Fountainbridge, Edinburgh, Scotland.

450,593 HOTSPUR—cycle tires of india rubber. E. J. Heraud, 78 and 80 Fore street, Edmonton, London, N. 18.

451,221 The letters R I L arranged in a monogram within a circular border—rubber and gutta percha goods exclusively in Class 40. Rubber Industries, Ltd., Downham Mills, Chesnut road, Tottenham, London, N. 17.

451,567 ATMO—rubber and gutta percha goods exclusively in Class 40. W. E. Smith, 6a St. George's Parade, Golders Green, London, N. W. 11.

452,027 HARLEQUIN—engine and machine packings and jointings included in Class 50. The Beldam Packing & Rubber Co., Ltd., 29 Gracechurch street, London, E. C. 3.

Published October 29, 1924

442,657 PANALITE—vulcanite sheets and slabs exclusively in Class 40.

449,688 Within a circle simulating a twist of fabric the word RUBSHU, the letters being graded in size so that the largest are on the ends and the smallest in the center, a twist of the border design following the line of the letters top and bottom; beneath the bottom twist the letter M; outside of the circle and following its circumference the firm name—boots, shoes, etc., including gaiters and goloshes. The Miner Rubber Co., Ltd., Denison avenue, Granby, Quebec, Canada.

450,187 Two squares each bearing the inscription: 1924 B. I. R. Co. RIGA, and beneath each the word QUADRAT; the smaller square, which is below, is partially surrounded by the curved letters of the inscription: BALT. INDIA RUBBER COMP.—rubber boots and shoes. Baltic India Rubber Co., Quadrat, 34 Baznicas iela, Riga, Latvia. For service in the United Kingdom address: Trademark Owners Association, Ltd., 31-34 Basinghall street, London, E. C. 2.

65,924 Tire. Term 14 years. B. H. Pratt, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

Issued* November 11, 1924

65,946 Tire. Term 7 years. R. E. Beegle, East St. Louis, Illinois.

65,980 Sponge rubber doll. Term 14 years. G. Shaw, assignor to The Miller Rubber Co., both in Akron, Ohio.

65,984 Tire. Term 14 years. C. W. Wolfe, Milwaukee, Wisconsin, assignor to The Fisk Rubber Co., Chicopee Falls, Massachusetts.

65,987 Tire tread. Term 14 years. H. S. Berlin, assignor to The Victor Rubber Co., both of Springfield, Ohio.

* Under Rule No. 167 of the United States Patent Office, the issue closes weekly on Thursday, and the patents of that issue bear date as of the fourth Tuesday thereafter.

The Dominion of Canada

Registered

6,325 Elastic material for corsets, having a series of fine corrugations upon the surface thereof, the raised portions of the corrugations being cut away at various places in such manner that the surface of the rubber appears in a series of zigzag lines, the whole having the appearance of watered silk. Ames Holden McCredy, Ltd., Montreal, Quebec.

6,341 Tire. Canadian Consolidated Rubber Co., Ltd., Montreal, Quebec.

6,342 Tread for bicycle tires. Dunlop Tire & Rubber Goods Co., Ltd., Montreal, Quebec.

6,347 Galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,348 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,349 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

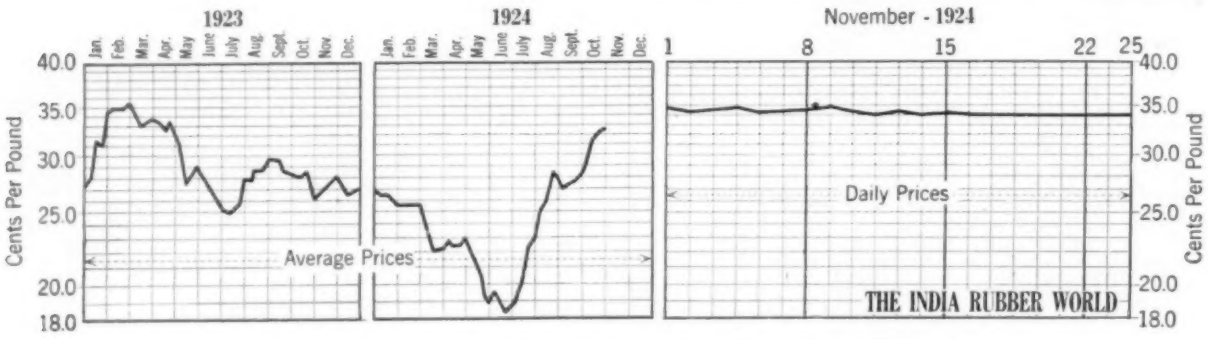
6,350 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,351 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,352 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,353 Overshoes or galoshes. Kaufman Rubber Co., Ltd., Kitchener, Ontario.

6,358 Tire tread. The Gregory Tire & Rubber Co., Ltd., Vancouver, British Columbia.



Ratio Graph of New York Closing Prices of Spot Ribbed Smoked Sheets

Review of the Crude Rubber Market

New York

DURING the four weeks interval between October 25 and November 22 the spot rubber market was generally steady and fairly active. The spot closing price of ribbed smoked sheets advanced the first week from 32⅜ cents to 34½ cents and in the succeeding three weeks did not fall below 34 cents, the average for the period being 34⅜ cents.

Early in the first week of this period the price sagged due to weakness in London, but quickly rose on confirmation of the enforcement of the increased limitation of the exportable allowance from British controlled plantations reducing the allowance to 50 per cent of standard production. In terms of weight the revised restriction reduces shipments by 1,396 tons. The immediate effect was seen in buying by dealers of all offers from Singapore and London, and active buying by Germany and other European countries.

Fair activity and easing off of prices, with the cessation of factory interest in the first half of the week ended November 8, gave place to an advance to 34⅞ cents in sympathy with the steadiness developed in London and the rise in Sterling. This was followed in the middle of the month by a week of inactivity, in which factory interests were absent from the market and waiting the outcome of rumors of a further cut in tire prices, which, however, did not eventuate. Heavy buying by large tire companies turned prices upward and stimulated dealers to buy on the slightest reaction.

During the two weeks that followed the London and Singapore markets were steady at prices above those in New York. Advancing prices will probably follow general resumption of buying by manufacturers.

On November 3 prices had advanced and November-December commanded 34½ cents: January-March, 34¾ cents, and April-June, 34½ cents.

November 24 these positions were lower: November-December, 34¼ cents; January-March, 34½ cents; and April-June 34⅜ cents.

Parás have held firm and steady in Brazil the entire month, with a limited demand. Other grades neglected. Balatas are available but not in active demand. Pontianak and the guttas were quiet at prices unchanged from a month ago.

Importations of all grades during October, 1924, were 37,157 tons, compared with 19,662 tons one year ago. Plantation arrivals for October were 34,073 tons, compared with 18,728 tons one year ago. Total importations of plantation rubber for ten months ended October 31 were 246,033 tons, compared with 244,107 tons for the corresponding period of 1923. Total importations of all grades of rubber for the ten months ended October 31 were 261,018 tons, compared with 258,595½ tons for the corresponding period of last year.

Spot and future quotations on standard plantation and Brazilian grades were as follows:

PLANTATION. November 1. Spot first latex crêpe, 34½-35 cents; Nov.-Dec., 34½-34¾ cents; Jan.-Mar., 34¾-35 cents; Apr.-June, 34½ cents.

November 24. Spot first latex crêpe, 34-34¼ cents; Nov.-Dec., 34¼ cents; Jan.-Mar., 34½ cents; Apr.-June, 34⅜ cents.

November 1. Spot ribbed smoked sheets, 34½-35 cents; Nov.-Dec., 34½-34¾ cents; Jan.-Mar., 34¾-35 cents; Apr.-June, 34½ cents.

November 24. Spot ribbed smoked sheets, 34-34⅛ cents; Nov.-Dec., 34-34⅛ cents; Jan.-Mar., 34⅛-34¼ cents; Apr.-June, 34⅛ cents.

November 1. Spot No. 2 amber crêpe, 34¼-34½ cents; Nov.-Dec., 34¼-34½ cents; Jan.-Mar., 34¾ cents; Apr.-June, 34¾ cents.

November 24. Spot No. 2 amber crêpe, 33¾-34 cents; Nov.-Dec., 33¾-34 cents; Jan.-Mar., 33⅞-34 cents; Apr.-June, 33¾ cents.

November 1. Spot No. 1 rolled brown crêpe, 33-33¼ cents; Nov.-Dec., 33⅛-33⅜ cents; Jan.-Mar., 33⅜-33½ cents; Apr.-June, 33⅛-33⅜ cents.

November 24. Spot No. 1 rolled brown crêpe, 32¾ cents; Nov.-Dec., 32⅝-32¾ cents; Jan.-Mar., 32⅝-32¾ cents; Apr.-June, 32¾ cents.

SOUTH AMERICAN PARAS AND CAUCHO. November 1. Spot, upriver fine, 32½-33 cents; islands fine, 29-29½ cents; upriver coarse, 22-22½ cents; islands coarse, 19-19½ cents; Cametá, 19½-20 cents; caucho ball, 22½-23 cents.

November 24. Spot, upriver fine, 32¾ cents; islands fine, 29¼ cents; upriver coarse, 23½ cents; Cametá, 18 cents; caucho ball, 21½-23½ cents.

New York Spot Closing Rubber Prices

PRICES IN CENTS, PER POUND

PLANTATIONS	September, 1924		October, 1924																					
	29	30	1	2	3	4	6	7	8	9	10	11	*13	14	15	16	17	18	20	21	22	23	24	25
Sheet																								
Ribbed smoked	28⅛	28¼	28⅞	29⅛	29½	29⅛	29⅜	29⅛	29¼	29½	30	31	....	31½	30⅞	30¼	31½	31½	31⅜	32¼	32⅜	32⅝	32⅜	32⅜
Crêpe																								
First latex	28½	28⅜	29	29⅜	29⅝	29⅝	29⅝	29¼	29⅜	29¾	30⅛	31⅛	....	31⅝	31	30¾	31½	31⅜	31⅜	32⅛	32⅝	32½	32⅜	32⅜
Off latex	28	27⅞	28½	29¼	29½	29¼	29⅛	28⅞	28⅞	29⅜	29¾	30⅜	....	31¼	30⅝	30⅜	31¼	31⅜	31⅛	32	32¼	32¼	32	32
No. 1 blanket	28⅛	28⅛	....	29⅜	29¼	29¼	....	....	....	29⅛	....	....	....	....	....	....	....	30⅞	31⅜	....	....	....	....	....
No. 2 blanket	27⅞	27⅞	28½	28⅞	28⅞	28¾	28⅞	29	29	29	29½	30½	....	31⅛	30¾	30½	30⅞	30⅞	31½	32⅛	32¼	32	31⅜	32
No. 3 blanket	27⅜	27¾	28⅜	28⅝	28⅝	28⅝	28⅝	28¾	28⅞	29¼	30¼	....	....	30¾	30¼	30¼	30⅝	30⅝	31⅛	32	32	31¾	31¾	31¾
No. 4 blanket	27½	27⅜	28⅛	28⅜	28¼	28⅛	28⅛	28⅛	28⅜	28⅜	29	29⅞	....	30½	30	29⅞	30⅛	30⅛	30⅞	31¾	31⅜	31⅜	31½	31½
Thin, clean brown	27¾	27¾	28⅛	28⅜	28⅛	28⅛	28⅛	28⅜	28⅛	28⅞	29⅛	30½	....	30¾	30⅛	30⅛	30¾	30⅝	31⅛	31¾	32	32	31¾	31¾
Specky brown	27⅛	27⅛	27⅞	28⅛	28	28	28	28⅛	28⅛	28¾	28¾	29¾	....	30⅛	29¾	29¾	30⅛	30⅛	30¾	31⅜	31⅜	31⅜	31⅜	31⅜
Rolled Brown	26⅞	26⅞	27¼	27¾	27⅝	27½	27½	27½	27½	27¼	28¼	29¼	....	29½	29½	29⅛	30	29¾	30	31⅛	31⅛	30⅝	30⅞	30⅞

* Holiday.

London

The combined influence of the enforcement of 5 per cent further restriction in shipments for the current quarter and steady buying on the part of American manufacturing interests served to advance prices which reached a new high for the year November 6 at 18¾ pence for ribs. The price advance failed to hold, however, and fell to 17 pence within a week. It, however, regained some of the decline and November 22 closed at 17½ pence with the market steady and quiet. The recovery was attributed to the continued advance in exchange and to American buying support.

Heavy deliveries against lower imports during the week of November 22, reduced London rubber stocks to 34,539 tons. The weekly stocks were as follows: October 28, 36,900 tons; November 4, 37,906 tons; November 11, 36,054 tons; November 18, 35,586 tons.

Singapore

November 1 closed with prices firm and up ¼ pence on all positions after a week of poor foreign buying, heavy up-country arrivals and generally mixed conditions. Prices continued to advance in sympathy with the London market and on November 3 were up ½ pence all around. A decline of ⅛ pence followed speculative profit taking. Less rubber was being offered and the market became steady and easier, closing November 8 at 17 pence for spot with reactionary trend in the consuming markets. The week ended November 15 began under speculative conditions, was broken up by holidays and closed with good continental and American business.

Steady prices and fair business marked the week ended November 22. Owing to the disparity in prices between the Singapore and New York markets business has become difficult. Singapore prices are too high to permit direct business with America and unless this is eliminated shipments will be diverted to London.

New York Quotations

Following are the New York spot rubber quotations, for one year, one month ago, and November 24, the current date:

Plantation Hevea	November 26, 1923	October 25, 1924	November 24, 1924
Rubber latex (Hevea)	$1.30 @	$1.30 @	$1.30 @
CRÊPE			
First latex	.28 @.28¼	.32½ @	.34 @.34¼
Off latex	.27¼ @	.32¼ @	.33¾ @.34
Amber No. 2	.26½ @	.32 @.32¼	.33¾ @.34
Amber No. 3	.25½ @.26	.31¾ @.32	.33½ @.33¾
Amber No. 4	@	.31⅝ @.31¾	.33¼ @.33½
Brown, clean, thin	.26 @	.31¾ @.32	.33½ @.33¾
Brown, specky	.25¾ @	.31¼ @.31½	.33 @.33¼
Brown, roll	.26¼ @	.31 @	.32½ @.32¾
Sole crêpe	@	.42 @.45	.42 @.45
SHEET			
Smoked, ribbed	.27¼ @.28	.32½ @	.34 @.34⅜
East Indian			
PONTIANAK			
Banjermassin	.07 @.08½	.07 @.07½	.07 @.07⅜
Palembang	.07 @	.07¾ @	.07½ @
Pressed block	.12½ @.13	.13¼ @	.13½ @.13¾
Sarawak	.06 @.07	.07 @	.07⅞ @

South American	November 26, 1923	October 25, 1924	November 24, 1924
PARAS			
Upriver, fine	$0.23 @	$0.32½ @	$0.32¾ @
Upriver, fine	*.31¾ @	*.41¾ @	*.43½ @
Upriver, medium	.21 @	.29 @	.30 @
Upriver, coarse	.19 @	.21¾ @	.23½ @
Upriver, coarse	*.28 @	*.32¼ @	*.33 @
Islands, fine	.21 @	.30 @	.29¼ @
Islands, medium	†.18 @	@	@
Islands, coarse	†.10 @.11	†.16 @	@
Cametá	†.11 @.11½	†.16 @	†.18 @
Acre Bolivian, fine	.23½ @.24	.32½ @	.33 @
Acre Bolivian, fine	*.32 @	*.42 @	*.44 @
Beni Bolivian	.24 @	.32½ @	.33¼ @
Madeira, fine	.24 @	.33 @	.33½ @
Peruvian, fine	.21 @	.30 @	.31¼ @
Tapajos, fine	.22 @	.30½ @	.31¼ @
CAUCHO			
Upper caucho ball	.21 @	.23¼ @	.23½ @
Upper caucho ball	*.28½ @	*.33 @	*.33 @
Lower caucho ball	.18½ @	.21 @	.21¼ @
Maniçobas			
Ceará negro heads	@	.14 @	.26 @
Ceará scrap	@	.08 @	.12 @
Maniçoba 30% guaranty	@	.20 @	.24 @
Mangabeira, thin sheet	@	.25 @	.27 @
Centrals			
Central scrap	.17 @	.20½ @	.23 @.23½
Central wet sheet	.16 @	.17 @	.13 @.16
Corinto scrap	.17 @	.20½ @	.23 @.23½
Esmeralda sausage	.17 @	.20½ @	.23 @.23½
Guayule washed and dried	.26 @	.26 @	.28 @
Africans			
Benguela, No. 2, 32½%	.13 @.15	.15 @	†.16 @
Congo prime, black upper	.20 @.21	.26 @	.26 @
Congo prime, red upper	.19 @.20	.25 @	.25 @
Kassai, black	.20 @.21	.26 @	.26 @
Kassai, red	.19 @.20	.25 @	.25 @
Gutta Percha			
Gutta Siak	.16¼ @	.17 @.17½	.17 @.18⅜
Gutta Soh	.27 @	.27 @.27¾	.27 @.28¼
Red Macassar	3.00 @	3.00 @3.20	†3.00 @
Balata			
Block, Ciudad Bolivar	.66 @	.64 @	.62 @.64
Colombia	.57 @	.53 @.54	.48 @.51
Panama	.56 @	.53 @.54	.48 @.50
Surinam, sheet	.73 @	.75 @	.74 @.75
amber	.76 @	.78 @	.76 @.78
Chicle			
Houduras	.63 @	‡.58 @.68	‡.58 @.68
Yucatan, fine	.65 @	‡.58 @.68	‡.58 @.68

*Washed and dried crêpe. Shipment from Brazil.
†Nominal.
‡Duty paid.

Comparative Low and High New York Spot Rubber Prices

	November 1924*	November 1923	November 1922
PLANTATIONS			
First latex crêpe	$0.33½ @$0.35	$0.26⅜ @$0.28	$0.22⅛ @$0.24⅛
Smoked sheet, ribbed	.33¾ @ .35	.26¼ @ .27⅜	.22⅛ @ .24⅛
PARAS			
Upriver, fine	.32½ @ .34	.21½ @ .24½	.23½ @ .24¼
Upriver, coarse	.22 @ .24	.17¾ @ .19¾	.17 @ .18½
Islands, fine	.29 @ .31	.20¼ @ .25½	.21 @ .22¼
Islands, coarse	.19 @ .19½	.11 @ .20½	.12 @ .16
Cametá	.19 @ .21	.11 @ .13	.09¼ @ .14½

* Figured to November 24, 1924.

New York Spot Closing Rubber Prices

PRICES IN CENTS, PER POUND

	October, 1924					November, 1924																	
PLANTATIONS	27	28	29	30	31	1	3	*4	5	6	7	8	10	11	12	13	14	15	17	18	19	20	21	22
Sheet																								
Ribbed smoked	32⅛	32	32⅛	32⅝	34⅛	34⅜	34⅜	....	34⅞	34¼	34⅛	34½	34⅞	34⅜	34	34⅛	34	34⅛	34	34	34	34	34	33⅞
Crêpe																								
First latex	32⅛	32	32⅛	32¾	34⅜	34¾	34⅜	....	35⅛	34½	34⅜	34½	34⅞	34⅜	34	34½	34½	34	34	34	34	34	34	33⅞
Off latex	31⅛	31⅝	32	32¼	34	34¼	34	....	34⅝	34	34⅛	34½	34½	34	33⅝	33⅞	33⅝	33¾	33½	33½	33¾	33⅝	33⅛	33¼
No. 2 blanket	31⅛	31⅝	31¾	32⅛	33¾	34¼	33⅞	....	34½	33¾	33⅝	34	34⅛	34	33½	34	33¾	33¾	33¾	33⅝	33¾	33¾	33¾	33⅝
No. 3 blanket	31⅝	31⅜	31½	32	33½	34	33⅝	....	34⅛	33½	33⅜	33⅞	34	33⅝	33¼	33⅝	33½	33½	33½	33⅛	33½	33½	33½	33⅜
No. 4 blanket	31⅜	31⅛	31¼	31⅝	33½	33¾	33⅜	....	33⅝	33⅛	33⅛	33⅜	33⅜	33⅛	32⅞	33⅜	33⅛	33½	33⅛	33⅛	33¼	33¼	33¼	33⅛
Thin, clean brown	31⅝	31⅜	31⅝	31⅝	33¾	33⅞	33⅝	....	34⅛	33½	33½	33¾	34⅛	33⅝	33⅛	33¾	33½	33¼	33⅜	33⅛	33¼	33⅜	33⅝	33⅝
Specky brown	31½	31	31¼	31½	33⅜	33⅝	33⅜	....	33⅞	33⅛	33	33¾	33⅝	33⅜	32½	33	33⅛	32¾	33	32½	33⅛	32⅞	32¾	32⅝
Rolled brown	30⅜	30⅝	30½	31	32¾	33⅛	32⅞	....	33¼	32⅜	32⅞	33⅛	33⅜	33	32½	32¾	32¼	32⅝	32⅜	32¾	32¾	32½	32⅛	32⅛

*Holiday.

Reclaimed Rubber

The reclaiming industry is producing at something like full capacity to meet the steadily increasing need of stocks by rubber goods manufacturers. Prices are advancing proportionately to those of the leading grades of rubber scrap but still represent actively competitive conditions and correspondingly limited profits.

Part of the increased interest in reclaims may be set down to the influence of rising prices for crude rubber grades, and part to the well maintained output of tires and demand for rubber goods for mechanical uses. For these lines the so-called super-reclaims are particularly well adapted owing to their high tensile properties, plasticity and low volume cost.

New York Quotations

November 24, 1924

Auto Tire			
Black	lb.	$0.08¼ @	$0.09
Black, washed	lb.	.10¼ @	.10¾
Dark gray	lb.	.09¼ @	.09⅝
Light gray	lb.	.11 @	.11¼
White	lb.	.13¾ @	.14¾
High Tensile Black			
Super-reclaim, No. 1	lb.	.15½ @	.16½
No. 2	lb.	.12 @	.13
Shoe			
Unwashed	lb.	.08½ @	.08¾
Washed	lb.	.12¼ @	.12⅝
Tube			
No. 1	lb.	.14½ @	.15½
No. 2	lb.	.11½ @	.12½
Uncured Tire Friction			
No. 1	lb.	.24 @	.25
No. 2	lb.	.18 @	.19
Miscellaneous			
High grade, red	lb.	.13½ @	.13⅝
Truck tire	lb.	.08¼ @	.08½
Mechanical blends	lb.	.05¼ @	.06¼

CRUDE RUBBER CONVERSION TABLE

The difficulty of reducing pounds, kilograms, pouds or kins of crude rubber to tons is lessened by use of the following tabulation compiled by W. H. Rickenson & Son, London, England, as published in the *World's Rubber Position*.

TABLE TO REDUCE POUNDS, KILOGRAMS, POUDS OR KINS TO TONS
(Approximately)

Pounds to tons	Pounds to tons	Kilograms to tons	
90,000,000	40,178	88,582	9
80,000,000	35,714	78,740	8
70,000,000	31,250	68,897	7
60,000,000	26,785	59,055	6
50,000,000	22,321	49,212	5
40,000,000	17,856	39,370	4
30,000,000	13,393	29,527	3
20,000,000	8,928	19,685	2
10,000,000	4,464	9,842	1
Pouds or Kins	**Pouds to tons**	**Kins to tons**	
90,000,000	1,446,945	53,150	9
80,000,000	1,286,173	47,244	8
70,000,000	1,125,402	41,339	7
60,000,000	964,630	35,433	6
50,000,000	803,858	29,528	5
40,000,000	643,086	23,622	4
30,000,000	482,315	17,716	3
20,000,000	321,543	11,811	2
10,000,000	160,771	5,905	1

Millions	Hundreds of thousands	Tens of thousands	Thousands	Hundreds
*1	2	3	4	5

* Place decimal point before this number of figures from the end of the above results.

For example:

98,763,800 lbs. or Kilogs

For Pounds	For Kilogs
40,178	88,582
3,571.4	7,874
312.5	688.9
26.7	59
1.3	2.9
0.3	0.7
44,090.2 tons	97,207.5 tons

654,250 Pouds or Kins

For Pouds	For Kins
9,646.3	354.3
803.8	29.5
64.3	2.3
3.2	0.1
0.8	0.02
—	—
10,518.4 tons	386.22 tons

Kilog = 2.2 lbs. Pound = 36 lbs. Kin = 1.3228 lbs.

The Market for Rubber Scrap

Rubber scrap prices for most grades remain unchanged from a month ago, except in tires and tubes, which are firm at moderate advance. Dealers anticipate increase of reclaiming demand owing to the increasing output of reclaim and tendency of crude rubber to advance.

BOOTS AND SHOES. Prices have moved with more or less irregularity and quotations are nominal. Buying by reclaimers has not run in large volume and low prices have curtailed offerings by collectors.

INNER TUBES. Tubes advanced on export business. In the domestic trade tubes are from ¾ to 1 cent higher than last month and moving at a fair rate into reclaiming plants.

MIXED TIRES. Tires have made a fractional advance of ¼ cent a pound and are a little more active with need of the reclaiming industry to replace stocks as their product moves more freely.

AIR BRAKE HOSE AND MECHANICAL SCRAP. These grades show no improvement in price or demand. Their low reclaiming and compounding value classes them of negligible technical interest as compared with shoes, tires and tubes.

Consumers' Quotations for Carload Lots Delivered

November 24, 1924

Boots and Shoes			
Boots and shoes, black	lb.	$0.02¾ @	$0.02½
Trimmed arctics, black	lb.	.01⅞ @	.02
Red and white	lb.	.01 @	.01¼
Untrimmed arctics	lb.	.01¼ @	.01⅜
Hard Rubber			
Battery jars, black compound	lb.	.01 @	—
No. 1 scrap	lb.	.05 @	.06
Inner Tubes			
No. 1 floating	lb.	.05 @	.05¼
No. 2 compounded	lb.	.03¼ @	.03½
Red	lb.	.03¼ @	.03½
Mechanicals			
Black scrap, mixed	lb.	.00¾ @	.01
Heels	lb.	.00¾ @	—
Horse-shoe pads	lb.	.00¾ @	—
Hose, air brake	ton	16.00	@17.00
regular	ton	11.00	@13.00
Red, scrap, mixed	lb.	.01¼ @	.01¾
White, scrap, mixed	lb.	.01⅛ @	.01⅜
Tires			
PNEUMATIC			
Auto peelings	ton	25.00	@35.00
Bicycle	ton	8.00	@ 9.00
Standard white autos, with beads	ton	24 00	@27.00
Mixed autos, with beads	ton	16.00	@18.00
Stripped, unguaranteed, with beads	ton	12.00	@13.00
SOLID			
Carriage	ton	21.00	@22.00
Irony	ton	11.00	@15.00
Truck, clean	ton	25.00	@30.00

AUSTRALIAN MARKET FOR AMERICAN RUBBERIZED TAPES

Rubber and friction tapes are used in Australia for practically the same purposes as in America: for electrical insulation, for tire repairs, in making grips on tool handles, etc. According to *Commerce Reports*, the American product is popular because of its excellent quality and it has little to fear from foreign competition. It has been estimated that about 100 cwt. of rubberized tapes are imported annually into New South Wales, and that about 80 per cent of this amount is manufactured in the United States. Despite the high duty and the somewhat adverse rate of exchange which is at present operating unfavorably toward American exporters to Australia, it is believed that the American manufacturer of rubberized tape can hold this market if his product continues to be of good quality.

The Market for Chemicals and Compounding Ingredients

New York

COMPOUNDING ingredients of all grades are in very active demand by every line of the rubber industry, the basic materials such as whiting, clay, carbon black, M. R., zinc oxide, etc., running in volume equal to supplying peak production in many lines.

ACCELERATORS. All the popular accelerators are in active demand especially in the tire industry and the supply is met practically wholly by domestic production.

BENZOL. Some recent increase in production has been effected. Supplies are in fair volume and prices remain unchanged.

LITHOPONE. Producers are busy making shipments against standing orders and report numerous inquiries coming in for first half of 1925 deliveries. There have been no price changes.

CARBON BLACK. Competition for 1925 contracts was keen enough in October to weaken the carbon black market seriously by the sale of distressed lots under 5 cents. The demand has since been routine and the situation firmer at practically 6 cents, which does not represent a reasonable profit to the producers of this material.

Rumors are current that smaller manufacturers are to combine interests in a merger for mutual protection, stabilizing both prices and production. This plan does not include the half dozen or more large producing companies, and after the merger there will be ample capacity and competition.

LITHARGE. One month ago there was a general advance on litharge and lead pigments of ¼ to ½ cent a pound. The demand continues fair and seasonably active.

THERMATOMIC CARBON. This material is rapidly finding favor with manufacturers of leading lines, namely, tires and tubes, footwear and mechanicals, due to its inherent qualities and low price.

ZINC OXIDE. Throughout the month zinc oxide has held firm in price, closing the period stronger and in good consuming demand.

New York Quotations

November 24, 1924

Accelerators, Inorganic

Lead, carbonate	*lb.*	$0.10½	@
Lead, red	*lb.*	.11¾	@
sublimed blue	*lb.*	.10	@
sublimed white	*lb.*	.10	@
Lime, flour	*lb.*		@
R. M. (factory)	*lb.*	.01¼	@
R. M. hydrated	*ton*	15.00	@$35.00
superfine	*lb.*	.01½	@ 0.02
Litharge	*lb.*	.11¼	@ .12
Magnesia, carbonate	*lb.*	.07¾	@ .08
calcined, light (bbls.)	*lb.*	.24	@ .40
calcined, ex. light (bbls.)	*lb.*	.40	@
calcined, md. light (bbls.)	*lb.*	.15	@
calcined, heavy (bbls.)	*lb.*	.04	@ .06
magnesium, carbonate, light,	*lb.*	.07¼	@ .07½
Orange mineral A.A.A.	*lb.*	.14¾	@
Rubber lead	*lb.*	.10	@

Accelerators, Organic

A-7	*lb.*	.75	@ .85
A-19	*lb.*	.85	@ .95
Accelemal	*lb.*	.30	@
Aldehyde ammonia powder	*lb.*	.95	@
Aniline (factory)	*lb.*	.16	@ .16½
sulphate	*lb.*		@
Cryline	*lb.*	.60	@
Diphenyl guanidine	*lb.*	1.10	@ 1.20
Ethylidene aniline	*lb.*	.75	@
Excellerex	*lb.*	.40	@ .43
Formaldehyde aniline	*lb.*	.42½	@
Hexamethylene tetramine	*lb.*	.85	@
Lead oleate (fac'ty)	*lb.*	.16	@
Methylene aniline	*lb.*	.32	@ .40
No. 999	*lb.*	.15½	@
Shawinigan paraldehyde	*lb.*	.17	@ .19
Paraphenylene diamine	*lb.*	1.30	@ 1.40
Super-sulphur, No. 1	*lb.*	.50	@ .60
No. 2	*lb.*	.25	@ .35
Tuads	*lb.*	6.00	@
Thiocarbanilide	*lb.*	.26	@ .35
Triphenylguanidine	*lb.*	.71	@ .75

Acids

Acetic 28% (bbls.)	100 *lbs.*	3.38	@
glacial (carboys)	*lb.*	.16	@
Cresylic (95% straw color)	*gal.*	.62	@ .65
(95 dark)	*gal.*	.58	@ .61
Sulphuric, 66° (carboys)	*lb.*	.02	@

Alkalies

Caustic soda	100 *lbs.*	$3.10	@$3.90
flake, 76% (factory)	100 *lbs.*	3.60	@ 4.31
solid, 76% (factory)	100 *lbs.*	3.20	@ 3.91

Colors

BLACK

Aerfloted arrow	*lb.*	.06¼	@ .10
Bone	*lb.*	.08	@ .09
Carbon black	*lb.*	.06	@ .10
compressed	*lb.*	.06½	@ .11
Drop	*lb.*	.08	@ .09
Ivory black	*lb.*	.12	@ .30
Lampblack	*lb.*	.10	@ .14
Micronex	*lb.*	.07	@ .12
A. & W. nonfli	*lb.*	.40	@
Shawinigan	*lb.*	.17	@ .18
Thermatomic carbon (factory)	*lb.*	.04	@ .07

BLUE

Cobalt	*lb.*	.21	@ .26
A. & W. blue	*lb.*	2.00	@ 4.00
Prussian	*lb.*	.40	@ .50
Ultramarine	*lb.*	.10	@ .35

BROWN

Iron oxide	*lb.*	.04½	@ .05
Sienna, Italian	*lb.*	.06½	@ .07
Umber, Turkey	*lb.*	.04½	@ .05

GREEN

Chrome, light	*lb.*	.29½	@$0.31
medium	*lb.*	.32	@ .35
dark	*lb.*	.35	@ .38
commercial	*lb.*	.10	@ .10½
tile	*lb.*	.13	@ .15
A. & W. green	*lb.*	2.00	@ 3.00
Oxide of chromium	*lb.*	.36	@ .51
T. K.	*lb.*	.40	@ .45

RED

Antimony, golden	*lb.*		@
golden T. K.	*lb.*	.18	@ .22
golden R.M.P. No. 7	*lb.*	.20	@
golden pentasulphide, T. K.	*lb.*	.33	@ .35
golden, 15/17% G. E.	*lb.*	.18	@ .20
golden, 15/17% F. S.	*lb.*	.18	@
golden, No. 1	*lb.*	.30	@
golden, No. 2	*lb.*	.20	@
Antimony, crimson	*lb.*		@
crimson T. K.	*lb.*	.45	@ .50
crimson, 15/17% G. E.	*lb.*	.40	@ .45
crimson, 15/17% F. S.	*lb.*	.39	@
crimson, R.M.P. No. 3	*lb.*	.48	@
crimson F.	*lb.*	.45	@
7-A	*lb.*	.35	@
Z-2	*lb.*	.18	@
Vermilion, 5% F. S.	*lb.*	.65	@
Vermilion 15/17% F.S.	*lb.*	.50	@
Arsenic, red-sulphide	*lb.*		@
A. & W. red (4 shades)	*lb.*	1.50	@ 3.00
purple	*lb.*	2.00	@ 3.00

RED

Iron oxides

domestic	*lb.*	$0.12	@
English	*lb.*	.12	@
English Indian	*lb.*	.10	@$0.13
Indian, pure	*lb.*	.08	@ .13
pure bright	*lb.*	.11	@ .14
reduced	*lb.*	.07	@ .10
Spanish	*lb.*	.02½	@ .04
Venetian	*lb.*	.02	@ .05½
Oximony	*lb.*	.13½	@
Pará toner	*lb.*	.95	@ 1.00
Toluidine toner	*lb.*	1.95	@ 2.25
Vermilion, English	*lb.*	1.30	@ 1.35

WHITE

Akcolith	*lb.*		@
Albalith	*lb.*	.06¾	@ .06½
Aluminum bronze	*lb.*	.55	@ 1.25
Lithopone	*lb.*	.05¾	@ .06
Sterling	*lb.*	.06½	@ .06½
Azolith	*lb.*	.06½	@ .06½
Imported	*lb.*	.05½	@ .06¼
Red seal, imported	*lb.*		@
T. O. pigment	*lb.*	.15	@ .17
Zinc oxide			
AAA, lead free	*lb.*	.08	@ .08¼
Azo (factory):			
ZZZ (lead free)	*lb.*	.07¾	@ .08¼
ZZ (5% leaded)	*lb.*	.06¾	@ .07¾
Z (8.10% leaded)	*lb.*	.06¾	@ .07¾
French process, Florence brand			
Green seal	*lb.*	.11	@ .11¼
Red seal	*lb.*	.10	@ .10¼
U. S. P.	*lb.*	.16	@ .18
White seal	*lb.*	.12	@ .12¼
Horse Head brands			
Selected	*lb.*	.08½	@ .08¾
Special	*lb.*	.08½	@ .08¾
XX red	*lb.*	.08	@ .08¼
Leaded brands			
Lehigh	*lb.*	.07¼	@ .07½
Standard	*lb.*	.07¼	@ .07½
Sterling	*lb.*	.07¼	@ .07½
Superior	*lb.*	.07¼	@ .07½
Palmerton process			
Kadox, black	*lb.*	.10¾	@ .11¼
blue	*lb.*	.09¾	@ .10¼
red	*lb.*	.08¾	@ .09¼
Snow white	*lb.*		@

YELLOW

Arsenic	*lb.*	.65	@ .75
Chrome	*lb.*	.18	@ .21
A. & W. yellow	*lb.*	2.50	@ 4.00
India rubber	*lb.*	.75	@
Ochre, domestic	*lb.*	.02	@ .03
imported	*lb.*	.02½	@ .03¼

Compounding Ingredients

Aluminum flake (sacks C.L.)	*ton*	$21.85	@
(sacks L. C. L.)	*ton*	24.50	@
Ammonia carbonate	*lb.*	.12½	@$0.12¾
Asbestine (factory)	*ton*	13.00	@25.00
Aluminum silicate	*ton*	22.00	@25.00
Barium, carbonate	*ton*	54.00	@55.00
dust	*lb.*	.05	@ .06
Barytes, imported	*ton*	28.00	@38.00
pure white	*ton*	30.00	@35.00
O.C.X., off color	*ton*		@
water ground and floated	*ton*	23.00	@26.00
Basofor	*lb.*	.04¼	@
Blanc fixe	*lb.*	.04	@ .04¼
Carrara filler (factory)	*lb.*	.01½	@ .02
Chalk, precip. extra light	*lb.*	.04¼	@ .05
heavy (f.o.b. factory)	*lb.*	.03¼	@ .04
Clay, Dixie	*ton*	20.00	@35.00
Blue ribbon (C. L. facty.)	*ton*	14.00	@
Blue Ridge	*ton*	12.00	@26.00
Catalpo (facty.)	*ton*	38.00	@40.00
China	*lb.*	.01½	@
China, L. H. B. (fact'y)	*ton*	13.00	@22.50
English, L. H. B.	*lb.*	.02½	@ .02¾
Langford	*ton*	12.00	@25.00
Cotton flock, black	*lb.*		@
light-colored	*lb.*		@
white	*lb.*		@
Cotton linters clean mill-run	*lb.*	.04½	@
Fossil flour (powdered)	*ton*		@
(bolted)	*ton*		@
Glue, high grade	*lb.*	.21	@ .29
medium	*lb.*	.19	@ .25
low grade	*lb.*	.14	@ .18
Graphite, flake	*lb.*	.06¾	@ .12
Infusorial earth (pow'd)	*lb.*	.03½	@
(bolted)	*ton*		@
Lime (bolted)	*lb.*	.01½	@ .02
Mica, amber	*lb.*	.05	@
powdered	*lb.*		@
white	*lb.*		@
Pumice stone, powd.	*lb.*	.03	@ .05
Rotten stone (bbls.)	*lb.*	.02½	@ .04½
Slate flour (facty.)	*ton*	8.50	@15.00
Soap bark, cut	*lb.*	.09	@ .09½
Soapstone	*ton*	15.00	@25.00
Sodium bicarbonate (bbls.) 100 *lbs.*		1.75	@
Starch, powd. corn (bags)		3.97	@ 4.07
(bbls.) 100 *lbs.*		4.24	@ 4.34
Talc, soapstone	*ton*	15.00	@22.00
Terra blanche	*ton*	23.00	@28.00
Whiting, domestic No. 33	*ton*	11.00	@
chalk, L. H. B.	*ton*	16.00	@25.00
commercial (facty.) 100 *lbs.*		1.00	@ 1.10
English, imported	*lb.*	.01¼	@
English, cliffstone (factory) 100 *lbs.*		1.50	@ 2.00
Georgia calcite	*ton*		@
gilders (bolted) 100 *lbs.*		1.10	@ 1.20
Nelco (factory)	*ton*	11.00	@22.50

Chemical Market—*Continued*

New York Quotations

November 24, 1924

Perfection	*ton*	$13.00	@$18.00
Quaker	*ton*	13.00	@22.00
Snowflake white	*ton*		@
Superfine	*ton*		@
Sussex	*ton*	8.00	@16.00
Witco (C. L.)	*ton*	12.00	@
York	*ton*	8.00	@
Wood pulp, XXX (facty.)	*ton*	35.00	@
X (facty.)	*ton*	25.00	@

Mineral Rubber

Genasco (facty.)	*ton*	$0.00	@52.00
Gilsonite	*ton*		@
Granulated M. R.	*ton*	40.00	@60.00
Hydrocarbon, hard	*ton*	31.00	@50.00
Hydrocarbon, soft	*ton*	30.00	@50.00
Ohmlac Kapak, K-R	*ton*	30.00	@60.00
K-4	*ton*	175.00	@
320/340 m. p. hydrocarbon	*ton*	47.00	@52.00
300/310 m. p. hydrocarbon	*ton*	42.00	@47.00
Pioneer, M. R., solid (fac.)	*ton*	42.00	@44.00
M. R. granular	*ton*	52.00	@54.00
Robertson, M. R., solid, (facty.)	*ton*	35.00	@75.00
M. R. (gran. facty.)	*ton*	42.00	@80.00
Rubrax (facty.)	*ton*	60.00	@
Synpro, gran. M. R. (facty.)	*ton*		@

Resins and Pitches

Tar, pine, retort	*bbl.*	12.50	@13.50
kiln	*bbl.*	12.50	@14.00
Pitch, Burgundy	*lb.*	.05½	@
coal tar	*ton*	30.00	@
Fluxol hardwood	*lb.*	.02	@ .04
pine tar	*bbl.*	5.50	@ 6.00
ponto	*lb.*	.05½	@
Rosin, K (bbl.) 280 *lbs.*		8.05	@
strained (bbl.) 280 *lbs.*		8.05	@
Shellac, fine orange	*lb.*	.67	@ .68
substitute	*gal.*	1.50	@
Peanut, crude	*lb.*	.13	@
refined	*lb.*	.16	@ .16½
Petrolatum, standard	*lb.*	.06	@ .08
Petrolatum, sticky	*lb.*	.08	@ .10
Pine, steam distilled	*gal.*	.68	@ .70
Rapeseed, refined	*gal.*	.98	@ 1.01
blown	*gal.*	1.05	@ 1.08
Rosin	*gal.*	.49	@ .50
Soya bean	*lb.*	.11¼	@
Tar	*gal.*	.28	@ .34
Woburn	*lb.*	.05	@

Oils (Softeners)

Avoilas compound	*lb.*	.12	@ .13
Castor, No. 1, U. S. P.	*lb.*	.16¼	@ .17
No. 3, U. S. P.	*lb.*	.16½	@ .16½
Corn, crude (bbls.)	*lb.*	.11¼	@ .11½
Cotton, Summer yellow	*lb.*	.11¼	@
Cycline	*gal.*	$0.32	@$0.35
Glycerine	*lb.*	.18½	@ .18¾
Linseed, raw	*gal.*	1.10	@ 1.11
Liquid rubber	*lb.*	.10	@
Palm lagos	*lb.*	.09¾	@ .10
clarified	*lb.*	.09½	@ .10
Palm, niger	*lb.*	.09	@
Parra M. R. flux	*lb.*	.06	@ .07

Solvents

Acetone (98.99%, [6.62 lbs. gal.])	*lb.*	.15	@ .16
Benzol (90%, 7.21 lbs. gal.) pure	*gal.*	.23	@ .28
Carbon bisulphide (10.81 lbs. gal.)	*lb.*	.06	@ .07½
tetrachloride (13.28 lbs. gal.)	*lb.*	.06½	@ .07½
Gasoline			
No. 303			
Tankcars	*gal.*	.20	@
Drums, C. L.	*gal.*	.23	@
Drums, L. C. L.	*gal.*	.26	@
Motor gas (steel bbls.)	*gal.*	.15	@
Naphtha, V. M. & P.	*gal.*	.14	@
68° Bé., 122°, 324°	*gal.*	.17	@
70° Bé., 114°, 314°	*gal.*	.18	@
71° Bé., 112°, 304°	*gal.*	.19	@
Turpentine, spirits	*gal.*	.87	@
wood, steam distilled	*gal.*	.79	@

Substitutes

Black	*lb.*	.08	@ .14
Brown	*lb.*	.10	@ .15
White	*lb.*	.09	@ .15
Brown factice	*lb.*	.08	@ .16
White factice	*lb.*	.08¾	@ .16

Vulcanizing Ingredients

Black hypo	*lb.*	.18	@
13% F. S.	*lb.*	.20	@
Sulphur chloride (drums)	*lb.*	.04½	@ .05
Sulphur, Bergenport brand, 100% pure (bbls.) 100 *lbs.*		2.60	@ 2.90
(bags) 100 *lbs.*		2.35	@ 2.65
Sulphur, Brooklyn brands			
Refined velvet (bbls.) 100 *lbs.*		2.60	@ 3.15
(bags) 100 *lbs.*		2.35	@ 2.90
Superfine flour (bbls.) 100 *lbs.*		2.40	@ 2.90
(bags) 100 *lbs.*		2.00	@ 2.50
Rubber makers 100 *lbs.*		3.25	@ 3.75

(See also Colors—Antimony)

Waxes

Wax, beeswax, white, com	*lb.*	.44	@ .48
ceresine, white	*lb.*	.10	@ .11
carnauba	*lb.*	.21½	@ .22
montan	*lb.*	.06	@ .06½
ozokerite, black	*lb.*	.24	@ .25
green	*lb.*	.26	@ .30

Paraffin

122/124 white crude scale	*lb.*	.06	@
124/126 white crude scale	*lb.*	.06½	@
120/122 fully refined	*lb.*	.06¾	@
125/127 fully refined	*lb.*	.06½	@

STANDARDIZING GARDEN HOSE

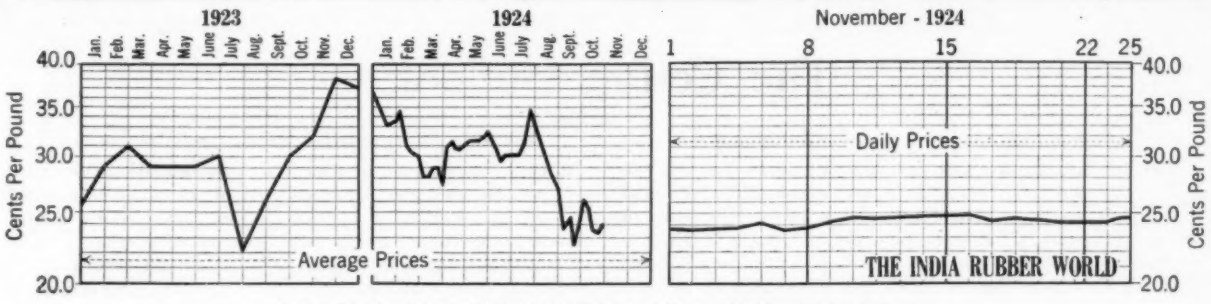
The results obtained from certain efforts to standardize hose fittings are fully set forth in a booklet issued by the Mechanical Rubber Goods Manufacturers' Division of The Rubber Association of America.

According to this publication, of the three sizes of garden hose now on the market the ⅝-inch size has been proved most satisfactory for general use, this type delivering water more rapidly, economically and conveniently than either the ¾-inch or ½-inch variety of fittings. The ⅝-inch size does more work than the ½-inch type, while it delivers practically as much water as the ¾-inch hose but with much less weight to lift around, lower cost per foot and decidedly greater durability. The National Hardware Association, the National Retail Hardware Association, twenty state associations, and many jobbers have endorsed the ⅝-inch size, which it is proposed to adopt as the standard type.

RUBBER SECTION N. S. C. ELECTS OFFICERS

The following officials of the Rubber Section, National Safety Council, will serve during the 1924-25 period:

Chairman of Executive Committee: E. L. Hewitt, United States Rubber Co., New Haven, Connecticut; Vice-Chairman and Secretary: H. H. Graef, Goodyear Tire & Rubber Co., Akron, Ohio; Chairman Engineering Committee: E. A. Hoener, The Firestone Tire & Rubber Co., Akron, Ohio; Chairman Safe Practice Committee: W. L. Schneider, The B. F. Goodrich Co., Akron, Ohio; Chairman Bulletin Committee: Reed B. Harkness, Cupples Manufacturing Co., St. Louis, Missouri; Chairman Membership Committee: R. C. Salisbury, Federal Division, The Fisk Rubber Co., Cudahy, Wisconsin; Chairman Publicity Committee: E. E. Hill, Kelly-Springfield Tire Co., 250 West 57th Street, New York, N. Y.; Chairman Health Hazard Committee: C. F. Horan, Hood Rubber Co., Watertown, Massachusetts.



Ratio Graph of New York Daily Prices of Spot Middling Upland Cotton

The Market for Cotton and Other Fabrics

New York

AMERICAN COTTON. The government report published October 25 indicated a yield of 12,675,000 bales, while that published November 8 indicated a crop of 12,816,000 bales. These reports were followed by sharp advances in the market. In the case of the later report it was not that the increase in yield advanced prices, but rather its publication eliminated doubt, which combined with election uncertainties of October had previously checked the buying of contracts on the prospects for general trade improvement. The endorsement afforded by the elections in the United States and England, which emphatically supported sound and conservative principles in government, found prompt expression in the favorable trade outlook. This outlook is confirmed by the action of the stock market, the firmness of the Liverpool market, and the increased business reported in the market for domestic goods. These features justify confidence in the increased estimates of the world's probable cotton consumption now set at about 12,750,000 bales.

ARIZONA COTTON. Arizona Pimas are in small supply and are practically keeping pace in price with Egyptian Sakels. No. 2 is reported as high as 46 to 47 cents. No. 1 is held 2 cents higher and extremely scarce.

EGYPTIAN COTTON. Free spot lots of desirable cotton are reported difficult to locate. Egyptian cotton continues to hold its tremendous premiums. This is particularly true of Sakels, which are now on an almost impossible basis, prompt shipments ranging 4 to 5 cents over futures. These high prices are exerting a serious effect on spinners of fine yarns all over the world, who are unable to sell yarns at the prices they are obliged to ask. Boston c. i. f. quotations on Sakels and Uppers for November-January shipments run as follows: Sakelarides, from 49¾ to 55⅝ cents; Uppers, from 34⅜ to 35¾ cents. These prices are considered far out of line with American prices and mills are checking up on all consumption of Egyptian cotton with a view to reducing it and there is practically no dealing.

Cotton Fabrics

DUCKS, DRILLS AND OSNABURGS. The market is active and demand is good. Consumers are providing for their advance requirements well into the Spring of 1925. In the cotton duck market the improvement within the past few weeks has been so great that the situation has been referred to as the best since 1920. Spot supplies have been nearly eliminated and premiums are asked on these goods.

RAINCOAT FABRICS. Business has improved considerably recently and no reaction is expected. The demand is for better goods for rain garments than was called for last season.

SHEETINGS. The market is rather firm and fairly well sold out up to February. Although business is much improved buyers are still conservative on their commitments.

TIRE FABRICS. Market conditions are quiet on major tire fabrics due to the tendency of the larger tire companies to purchase and operate their own mills for a certain proportion of their consumption. Indications are that these operators will cease to be in the market heavily for regular fabrics, but no doubt will continue to place coarse numbered fabrics in open market.

The smaller tire companies appear to be interested in commitments for the first three months of 1925. Prices are very little above the levels of several months ago. Further softening in fabric prices is not likely. Present levels are based on cotton below current market quotations and fluctuations downward in cotton will have little or no effect. Fabric mills generally look for higher prices next year and some may be restricting their production as an aid in attaining this result.

New York Quotations

November 24, 1924

Drills

38-inch 2.00-yard	yard	$0.22½@
40-inch 3.47-yard		.13⅛@
52-inch 1.90-yard		.24½@
60-inch 1.52-yard		.30¼@

Duck

38-inch 2.00-yard	yard	.23¼@
40-inch 1.47-yard		.31⅛@
72-inch 16.66-ounce		.53⅞@
72-inch 17.21-ounce		.54⅞@
MECHANICAL		
Hose	pound	.44 @
Belting		.43 @
TENNIS		
52-inch 1.35 yard	yard	.36½@

Hollands

DEAD FINISH		
Standard, 37-inch	yard	.19½@
41-inch		.23¾@
FLAT FINISH		
Imperial, 36-inch		.15½@
40-inch		.17½@
RED SEAL		
36-inch		.18 @
40-inch		.19 @
50-inch		.30 @

GOLD SEAL

40-inch	$0.30½@

Osnaburgs

40-inch 2.35-yard	yard	.19¼@
40-inch 2.48-yard		.18¾@
40-inch 3.00-yard		.15½@
37-inch 2.42-yard		.19¼@

Raincoat Fabrics

COTTON		
Bombazine 64 x 60	yard	.12½@
Bombazine 60 x 48		.11½@
Plaids 60 x 48		.12½@
Plaids 56 x 54		.12 @
Surface prints 60 x 48		.12½@
Surface print 64x60		.13½@

Sheetings, 40-inch

48 x 48, 2.50-yard	yard	.16¾@
48 x 48, 2.85-yard		.14¾@
64 x 68, 3.15-yard		.14¾@
56 x 60, 3.60-yard		.12¼@
48 x 44, 3.75-yard		.11¼@

Sheetings, 36-inch

48 x 48, 5.00-yard	yard	$0.09¼@
40 x 40, 6.15-yard		.07¾@

Tire Fabrics

SQUARE WOVEN 17¼-ounce			
Egyptian, karded	pound	.63 @	.66
Peeler, karded		.51 @	.54
CORD 23/5/3			
Egyptian, combed	pound	.75 @	.80
Egyptian, karded		.65 @	.68
Peeler, combed		.73 @	
Peeler, combed, 1 1/16-in.	pound	.61 @	.63
Peeler, karded		.53 @	.56
CORD 13/3/3			
Peeler, karded	pound	.52 @	.54
LENO BREAKER			
8-oz. Peeler, karded	pound	.52 @	.55
10-oz. Peeler, karded		.52 @	.55
CHAFER			
8.25-oz. Peeler, karded	pound	.53 @	.54
9.5-oz. Peeler, karded		.53 @	.54
12-oz. Peeler, karded		.52 @	.53
14-oz. Peeler, karded		.52 @	.53

The Cotton Outlook

Prospective American Crop Increases

UNUSUALLY favorable weather conditions during the last two weeks of October resulted in an increase of 141,000 bales in this year's prospective cotton crop above the forecast of October 18, and of 317,000 bales above that of October 1. The Department of Agriculture forecasts a total production of 12,816,000 bales, and the Census Bureau reports that 9,694,920 bales, or more than three-quarters of the crop, had been ginned prior to November 1. This confirms numerous reports from private sources that the crop would considerably exceed the government forecast of October 1.

The forecast of production was based on the condition of the crop on November 1, which was 55.9 per cent of normal, compared with 54.7 on October 18 and 53.5 on October 1 this year and 47.8 on October 25 last year. Last year's production, according to ginning returns, was 10,139,671 equivalent 500-pound bales.

The condition of the crop on November 1 and the forecast of production by states follow:

Virginia, condition 49 per cent and forecast 33,000 bales; North Carolina, 49 and 770,000; South Carolina, 49 and 715,000; Georgia, 51 and 1,030,000; Florida, 66 and 27,000; Alabama, 61 and 980,000; Mississippi, 61 and 1,120,000; Louisiana, 52 and 450,000; Texas, 54 and 4,450,000; Arkansas, 62 and 1,150,000; Tennessee, 59 and 365,000; Missouri, 56 and 190,000; Oklahoma, 66 and 1,300,000; California, 73 and 65,000; Arizona, 75 and 95,000; New Mexico, 82 and 56,000; all other states, 75 and 20,000. Texas is credited with a crop nearly equal to that of the four next states in relative importance combined, while New Mexico has considerably the highest percentage of yield.

Of this year's crop 9,694,920 running bales, counting round as half bales, had been ginned prior to November 1, compared with 7,556,042 bales last year, and 8,139,215 bales for 1922 to that date.

Total ginnings include 239,535 round bales, compared with 199,236 to November 1 last year, and 1,852 of American-Egyptian compared with 11,551 last year.

The revised total of cotton ginned this season to October 18 was announced at 7,615,761 bales.

Other Crop Estimates

As usual crop estimates from different sources vary considerably. For example, the last American Cotton Association report places the condition of the crop as of October 23 at 55.7 per cent and the indicated yield at 12,304,000 bales, 371,000 bales under the government forecast as of October 18 and 512,000 bales under that as of November 1. The association's report is based on an acreage of 38,429,000, as compared with 40,403,000 government total unrevised since July. It is generally believed by association authorities on cotton statistics that the present government par yields per acre are too high for accuracy and are more than likely to overestimate the final crop yield.

On the other hand, the observers of the *Journal of Commerce* on November 3 reaffirmed their October 1 estimated yield of 13,015,577 bales, an amount 199,577 bales more than the government estimate of November 1. This is predicated on the ideal October weather this year as contrasted with the cold rains last year; the high percentage of the crop already picked; the low average deterioration; the fine quality of the staple, and the general absence of insect damage.

The outstanding fact, however, seems to be that, based on the lowest crop estimates worthy of serious attention, the crop is likely to be over 2,000,000 bales more than last year and will at least equal and perhaps exceed the average annual world consumption of American cotton for recent years.

Planters Disappointed in Prices Obtainable

With the revival of hopes for a big crop, market values have been steadily declining. From all parts of the belt it is reported that cotton is being held for better prices. There seems to be a general agreement not to sell under 25 cents, since many planters claim that this has been an expensive crop to raise and anything below that figure would result in a loss. A considerable proportion of the smaller tenant farmers have been compelled to sell to meet maturing obligations, but there are many who are either storing their output or turning it over to the cooperative societies to be held for higher price. In some States the cooperatives report important accessions to membership and estimate that they will handle a larger percentage of the crop this year than last.

Protest Against Frequent Government Crop Reports

Protests are being made by numerous cotton organizations and important private interests against the semi-monthly cotton crop reports and forecasts issued by the Department of Agriculture by Act of Congress passed May 4, 1924, and asking for its repeal. It is asserted that these frequent cotton reports, the accuracy of which is sometimes questioned, do more harm than good, as they have caused constant unsettlement of the cotton market, resulting in violent fluctuations, thus preventing stabilization in either raw cotton or cotton goods prices, and have served no apparent useful purpose to cotton planters, manufacturers, distributers or consumers.

Among the protestants are the New York Cotton Exchange, Liverpool Cotton Association, New Orleans Cotton Exchange, National Wholesale Dry Goods Association, Memphis Cotton Exchange and Dallas Cotton Exchange. Officials of the Department of Agriculture believe it is too soon to determine the effect of semi-monthly reports and are soon to issue a detailed statement on the subject.

British Mill Activity Increases

Lancashire mills spinning American cotton increased their hours of operation from 26¼ to 32 per week beginning November 3. A continuation of the present demand is expected to absorb the increased output. The feeling of confidence thus inspired has resulted in a record-breaking boom and turnover in mill shares.

It is estimated that the longer working day is equivalent to an increase in consumption of 400,000 bales of cotton annually. This is of interest in contrast with the remarkable decrease in the consumption of American cotton in England last season, the average weekly consumption being only 28,760 bales against 52,900 bales in 1919-20, according to the annual report of the Liverpool Cotton Association. On the other hand, during the same period the consumption of Egyptian cotton increased from 6,840 bales per week to 9,230 bales, and in East Indian an increase showed itself from 1,800 bales per week in 1919-20 to 5,060 bales per week last season.

During the last four years the percentage of the total supplies has been only 13.83 per cent against 21.29 per cent in the previous five years and 37.28 per cent in 1890-95. It may be mentioned that the exports to Northern Europe have increased during the last four years to 14.16 per cent as compared with only 2.69 per cent in the previous five years.

World Mills Used Less Cotton Last Year

A decrease of 8.6 per cent in world mill consumption of cotton during the year ended July 31, 1924, and a decrease of 8.4 per cent in mill stocks on that date as compared with 1923, are estimated by the International Federation of Master Cotton Spinners' Associations. The federation's estimate is based upon returns from 91 per cent of the world's spinners.

The federation estimates that 20,234,000 bales of cotton were consumed by the world's cotton mills during the year ended July 31, 1923, as compared with 22,143,000 bales the preceding year, and 21,162,000 bales in 1921-1922. World consumption of American cotton for this year is reported at 10,975,000 bales, compared with 12,710,000 bales last year.

Cotton Consumption Continues to Increase

Cotton consumed during October aggregated 532,629 bales of lint and 55,095 of linters, compared with 435,216 of lint and 49,976 of linters in September this year, and 543,260 of lint and 57,491 of linters in October last year, according to the Census Bureau.

Consumption of lint cotton to date, compared with that of last year, has been as follows:

	1924-25	1923-24
August	357,455	492,483
September	435,216	485,665
October	532,629	543,260
Totals, bales	1,325,300	1,521,408

Cotton on hand October 31 was:

Held in consuming establishments, 730,656 bales of lint and 74,405 of linters, compared with 514,537 of lint and 70,409 of linters so held on September 30 this year, and 1,106,347 of lint and 87,412 of linters so held October 31 last year.

Held in public storage and at compresses, 4,224,854 bales of lint and 46,958 of linters, compared with 2,072,956 of lint and 38,202 of linters so held on September 30 this year and 3,485,005 of lint and 35,117 of linters so held on October 31 last year.

Imports during October totaled 18,113 bales, compared with 9,654 in September this year and 7,615 in October last year.

Exports during October totaled 947,556 bales, including 4,380 bales of linters, compared with 737,010, including 3,498 of linters in September this year and 774,320 including 3,938 of linters in October last year.

Active spindles during October numbered 31,078,804, compared with 30,122,384 in September this year and 34,335,930 in October last year.

British Malaya

Rubber Exports

An official cablegram from Singapore states that the amount of rubber exported from British Malaya during the month of October was 20,270 tons. The amount of rubber imported was 9,981 tons, of which 8,178 tons were declared as wet rubber.

The following are comparative statistics:

	1923		1924	
	Gross Exports, Tons	Foreign Imports, Tons	Gross Exports, Tons	Foreign Imports, Tons
January	22,871	4,358	23,844	8,867
February	19,907	4,089	19,395	7,440
March	23,646	5,108	22,294	8,269
April	24,008	5,389	20,551	7,909
May	20,115	5,020	19,674	7,259
June	18,621	4,957	18,084	7,435
July	16,739	5,624	21,670	9,777
August	19,806	7,042	22,133	9,776
September	21,955	5,269	25,127	9,291
October	21,424	6,341	20,270	9,981

Destination of Shipments

Destination	September, 1924, Tons	October, 1924, Tons
United Kingdom	2,506.28	*2,599
United States of America	20,205.08	*13,911
Continent of Europe	1,197.39	*872
British Possessions	173.22	*218
Japan	1,036.53	*2,645
Other foreign countries	8.97	*25
Totals	25,127.47	*20,270

*To nearest ton.

DURING THE SIX MONTHS PERIOD ENDED JUNE 30, 1924, HAWAII'S purchases from the United States of druggists' rubber sundries totaled 9,003 pounds, value $10,888; and Porto Rico's share was 10,821 pounds, value $10,401.

Metal Market Review

New York

Throughout November the markets all continued moderately active, with prices strong. No large flood of orders followed the election, but figures became higher for several of the metals, while zinc prices especially advanced sharply, with buying of large proportions.

ALUMINUM. The election is said to have particularly supported this market, prices remaining firm.

ANTIMONY. Prices for this metal advanced during the first part of the month, the later market, however, being quieter. Spot antimony commands 15 cents, duty paid.

COPPER. The Copper and Brass Research Association reports domestic deliveries of copper during the first nine months of the year as being 1,156,000,000 pounds, which means an approximate total for 1924 of 1,600,000,000 pounds. These figures represent refinery deliveries and take no cognizance of the very large consumption of secondary or scrap copper. The increase over the figures for domestic consumption in 1923, at 1,470,000,000 pounds, is very evident.

LEAD. The situation in this market shows little change, the leading interest continuing to maintain its contract price at 8.65 cents, New York. Prices in the outside market vary widely.

NICKEL. Shot and ingot nickel in wholesale lots are quoted unchanged at 29 to 30 cents a pound, with electrolytic nickel quoted at 33 cents.

STEEL. The *Iron Trade Review* states that the election results cleared the air of much uncertainty, bringing high confidence to the steel market, while the *American Metal Market* says that the steel industry has definitely rounded a turn toward increased activity and better prices. Steel ingot production in October was at the daily rate of 115,239 tons, an increase of 6.4 per cent over the September rate.

TIN. Prices have continued to advance, with buying of good proportions. The world's visible supply of tin showed a decline of 1,262 tons in October, and totaled 18,971 tons at the end of the month.

ZINC. Foreign demand throughout November continued to be the main strength of prime western zinc, although domestic demand was also good. The last of the month saw an advance of about 20 points, with quotations higher than they had been in many months.

Basic Metals

November 22, 1924

	Cents per pound	
Aluminum, virgin, 98@99 per cent	27.00	@28.00
Antimony	14.50	@14.75
Copper—Lake, spot	14.00	@14.125
Electrolytic, spot	13.37	@
Casting refinery	13.25	@
Lead, spot, New York	8.65	@ 9.00
Lead, spot, East St. Louis	8.40	@ 8.80
Nickel, ingot, pound	29.00	@32.00
Tin, spot	54.625	@
Zinc, spot, New York	7.10	@ 7.15
Zinc, spot, East St. Louis	6.80	@ 6.85

Steel Wire

BASE PRICE* ON NO. 9 GAGE AND COARSE

	Cents per pound	
Bright basic	4.25	@ 4.50
Annealed soft	4.50	@ 4.75
Galvanized annealed	5.15	@ 5.40
Coppered basic	5.15	@ 5.40
Tinned soft Bessemer	6.15	@ 6.40

*Regular extras for lighter gage.

Copper Wire

Base price F. O. B. factory

	Cents per pound	
Bare copper wire	16.125	@
No. 6 B. & S. gage	16.125	@
No. 8 B. & S. gage	16.125	@
No. 14 B. & S. gage	17.125	@

Exports of India Rubber Manufactures from the

EXPORTED TO—	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Water-proofed Auto Cloth Value	Water-proofed Clothing Value
EUROPE													
Austria	.....	.....	.....	.....	5,508	$10,220	102,467	$55,351	.....	.....	$34	.....	.....
Azores and Madeira Is.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Belgium	$787	$2,945	$866	$5,018	564	1,862	9,744	5,147	360	$365	.....	$1,988	.....
Bulgaria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Denmark	492	361	911	.....	6,256	16,556	44,024	22,107	394	344	99	.....	.....
Finland	3,555	68	.....	.....	.....	.....	.....	.....	.....	.....	.....	107	.....
France	7,428	1,187	2,459	23,287	132	433	.....	.....	72	43	55	796	.....
Germany	.....	.....	69	.....	600	2,200	419	513	.....	.....	806	193	$360
Greece	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	504	1,800
Hungary	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Iceland and Faroe Islands	.....	.....	.....	.....	859	2,525	1,903	3,641	.....	.....	152	.....	.....
Italy	.....	100	.....	11,354	1,212	3,966	8,153	9,434	.....	.....	.....	622	.....
Latvia	1,831	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Malta, Gozo, and Cyprus Islands	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Netherlands	.....	400	126	.....	300	606	456	320	.....	.....	653	166	.....
Norway	107	109	.....	.....	715	1,863	956	1,645	2,716	1,349	2,696	70	.....
Poland and Danzig	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Portugal	.....	.....	.....	.....	.....	.....	192	142	.....	.....	877	.....	.....
Spain	4,557	142	71	1,908	.....	.....	.....	.....	.....	.....	194	269	.....
Sweden	2,236	3,046	405	548	216	540	1,727	4,071	.....	.....	316	1,568	.....
Switzerland	.....	40	50	.....	7,990	13,592	13,234	11,678	.....	.....	.....	320	.....
Turkey in Europe	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
England	13,146	25,415	11,629	49,559	50,653	192,892	99,173	66,996	3,441	1,904	163	7,630	3,084
Scotland	2,313	3,063	.....	.....	4,184	5,926	6,042	3,436	.....	.....	.....	.....	.....
Ireland	.....	.....	.....	.....	264	374	1,807	393	24	20	.....	.....	.....
Jugoslavia, Albania, etc.	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, EUROPE	$36,446	$36,876	$16,526	$91,774	79,453	$253,555	290,207	$181,874	7,067	$4,025	$6,045	$14,233	$5,244
NORTH AMERICA													
Canada	$33,675	$13,090	$6,987	$6,233	2,382	$6,872	11,078	$6,728	28	$35	$1,239	$12,364	$3,086
British Honduras	48	10	.....	.....	.....	.....	.....	.....	64	64	15	.....	57
Costa Rica	.....	231	.....	.....	.....	.....	66	61	.....	.....	1,568	.....	538
Guatemala	.....	590	92	.....	.....	.....	.....	.....	1,002	715	2,563	169	.....
Honduras	150	422	45	.....	.....	.....	.....	.....	544	533	1,028	.....	1,918
Nicaragua	400	260	123	.....	.....	.....	.....	.....	511	324	812	.....	.....
Panama	187	7,601	742	.....	12	36	755	696	2,887	2,649	714	829	202
Salvador	.....	248	26	.....	.....	.....	.....	.....	504	363	3,543	120	48
Mexico	26,452	11,489	5,886	2,075	65	234	370	291	34,083	30,067	8,654	3,067	1,317
Miquelon and St. Pierre Islands	.....	.....	.....	.....	834	2,379	108	87	.....	.....	.....	.....	51
Newfoundland and Labrador	567	1,888	333	.....	2,816	6,386	21,538	15,278	216	125	1,036	.....	5,347
Bermuda	.....	.....	22	.....	7	18	20	15	399	403	52	43	701
Barbados	.....	.....	.....	.....	.....	.....	.....	.....	201	151	16	.....	.....
Jamaica	80	383	118	.....	.....	.....	.....	.....	1,740	1,580	547	452	.....
Trinidad and Tobago	248	56	570	.....	.....	.....	1,235	413	2,019	1,457	258	62	.....
Other British West Indies	.....	337	22	.....	.....	.....	156	107	2,408	1,859	49	32	.....
Cuba	2,397	14,114	15,107	.....	.....	.....	6,809	4,339	52,988	29,380	5,412	8,697	4,531
Dominican Republic	.....	1,764	550	.....	.....	.....	.....	.....	15,289	9,377	168	291	113
Dutch West Indies	.....	.....	.....	.....	.....	.....	.....	.....	2,835	2,016	297	.....	.....
French West Indies	48	.....	.....	.....	.....	.....	.....	.....	192	129	.....	.....	.....
Haiti	38	289	21	.....	.....	.....	.....	.....	1,850	1,372	129	.....	15
Virgin Islands of U. S.	.....	.....	26	.....	.....	.....	.....	.....	.....	.....	10	.....	45
TOTALS, NORTH AMERICA	$64,290	$52,772	$30,670	$8,308	6,116	$15,925	42,130	$28,015	119,790	$82,599	$28,110	$26,126	$17,969
SOUTH AMERICA													
Argentina	$22,745	$3,976	$814	.....	.....	.....	25	$42	28,337	$23,580	$2,729	$7,561	$2,375
Bolivia	1,923	44	431	.....	.....	.....	.....	.....	.....	.....	219	.....	553
Brazil	11,024	227	972	$638	.....	.....	5,420	3,127	.....	.....	.....	2,347	.....
Chile	19,844	4,357	1,993	.....	2	811	.....	.....	592	433	221	942	.....
Colombia	898	2,318	555	.....	12	70	762	585	3,463	2,313	7,410	625	991
Ecuador	187	228	326	.....	.....	.....	.....	.....	2,104	1,245	852	.....	.....
British Guiana	.....	.....	18	.....	.....	.....	.....	.....	24	17	.....	86	96
Dutch Guiana	14	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
French Guiana	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Paraguay	.....	.....	.....	.....	.....	.....	.....	.....	48	55	.....	.....	.....
Peru	1,511	526	486	.....	5	37	.....	.....	307	488	517	376	.....
Uruguay	1,039	80	149	.....	279	834	480	200	6,590	5,824	121	80	863
Venezuela	236	2,798	3,852	.....	.....	.....	.....	.....	.....	.....	2,665	245	.....
TOTALS, SOUTH AMERICA	$59,421	$14,554	$9,596	$638	298	$952	6,687	$3,954	41,465	$33,955	$14,734	$12,262	$4,878
ASIA													
British India	$1,039	$2,130	.....	$7,484	.....	.....	.....	.....	10,733	$11,347	.....	.....	.....
Ceylon	.....	447	$20	.....	.....	.....	.....	.....	24	41	.....	$394	.....
Straits Settlements	.....	.....	.....	.....	100	$225	.....	.....	978	826	.....	541	.....
China	344	405	75	.....	.....	.....	168	$42	168	156	.....	6,482	.....
Chosen	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Java and Madura	4,339	953	1,030	.....	.....	.....	.....	.....	2,424	2,903	.....	3,375	$234
Other Dutch East Indies	.....	.....	192	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
French Indo-China	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Hongkong	.....	103	60	.....	.....	.....	360	312	1,248	1,034	.....	.....	.....
Japan	50	12,898	3,974	12,021	3,284	7,372	.....	.....	.....	.....	.....	.....	.....
Kwangtung, leased territory	11,047	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Palestine and Syria	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Persia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Philippine Islands	4,109	3,588	2,444	.....	.....	.....	.....	.....	11,805	9,892	$1,145	207	1,286
Russia in Asia	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Siam	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
TOTALS, ASIA	$20,928	$20,524	$7,795	$19,505	3,384	$7,597	528	$354	27,386	$26,199	$1,145	$10,999	$1,520
OCEANIA													
Australia	$9,274	$2,869	$1,304	.....	346	$1,057	.....	.....	2,690	$1,971	.....	$10,472	$750
British Oceania	13	.....	.....	.....	.....	.....	.....	.....	288	266	.....	.....	.....
French Oceania	.....	.....	.....	.....	.....	.....	.....	.....	814	881	.....	.....	.....
New Zealand	2,434	1,798	3,550	.....	240	732	.....	.....	432	415	$92	2,105	254
Other Oceania	.....	.....	.....	.....	.....	.....	.....	.....	144	180	.....	.....	.....
TOTALS, OCEANIA	$11,721	$4,667	$4,854	.....	586	$1,789	.....	.....	4,368	$3,713	$92	$12,577	$1,004

United States by Countries During September, 1924

	Pneumatic Casings			Solid Tires		Pneumatic Tubes				Hard Rubber Goods						
	Automobile			Automobile and Motor Truck		Automobile										
	Number	Value	Others Value	Value	Others Value	Number	Value	Others Value	Tire Repair Materials Value	Battery Jars and Accessories Value	Other Electrical Supplies Value	Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
													$197			
													183	$425	$26	$10
						310	$1,587		$797							
									31							41
	601	$21,401			$59							$115		606	174	
	20	348						$60	1,457							126
	2,753	34,449		$5,463		1,068	2,589	8					1,455	8,374	259	2,483
	546	7,525				240	668		681	$978	$1,500	2,553		80		
	797	13,186				60	106									
	143	1,684		253		530	768									
	195	2,952		3,950												
									80				311			1,001
	21	234				306	490	86	36							
	446	3,823				362	685									11,929
	190	2,485	$21									953	247	1,110		
	100	978				1,530	2,996	126	160				224	119		
	1,774	25,576	109	120		1,490	3,557	191								
	913	16,622	322	3,147					296	58						85
	16	304				805	1,440		2,304				143	1,558		1,193
	227	3,575		62		337	558		609				32	139		2,861
	1,133	12,685		6,051		2,983	4,287		866							
	780	11,316		839		833	1,754		446				7,462	23,015	5,170	22,765
	1,024	15,708	64						5,937	130	3,671	24,741		1,708		135
						6,577	13,698	402	3,678							
	14,707	177,637	3,512	68,547		15	22									
	124	838		1,542												
	26,516	$353,226	$4,028	$89,974	$59	17,246	$35,205	$873	$17,378	$1,166	$5,171	$28,362	$10,254	$37,134	$5,629	$42,629
													$789	$12,635	$80	$7,239
	1,521	$21,470	$238	$5,374	$588	656	$2,534	$174	$8,354	$5,470	$1,432	$10,547				
	10	129	5			4	10	1					48	124	42	353
	86	953		110	16	36	56							72		
	78	1,312		82		82	151		15					78	40	42
	20	284		1,639		40	78				75	13	27	178		58
	6	62		302				15				114	106	482	31	381
	374	5,317	315	1,170	176	239	516	15	115			68	113	162		281
	226	4,682		891		349	1,195				337	5,072	550	3,542		7,783
	8,066	70,766	1,368	4,529	816	4,694	9,215	123	3,277					128		325
	1	25														85
	79	744			289	82	128		230							
					168						23			40		262
	32	321				32	46	7	55			34				176
	374	3,811	88	3,241		767	982		140					27		
	120	1,207		1,460	19	20	23									4,233
	69	752	63	181	83	370	502	30			70	76	2,006	2,370	3,130	164
	9,780	90,825	3,467	22,670	2,300	10,775	16,770	505	4,398				174		38	
	1,932	10,967		1,142	57	676	835		17						25	
	138	1,132		120		316	440		28							28
	24	573			442											
	171	3,154				259	571		15					124		
	38	345		32		50	61		3							
	23,145	$218,831	$5,544	$42,943	$4,954	19,447	$34,113	$870	$16,647	$5,563	$1,920	$18,028	$4,003	$20,785	$193	$21,412
						4,635	$6,442	$20	$4,557			$1,360	$190	$2,709	$2,997	$1,575
	9,036	$99,135	$36	$3,928		2	20	25								68
	2	170	45	152		46	153		425			213	1,874	1,440		243
	147	2,036		1,259		90	265					36	43	125	634	781
	544	9,405		169	$259	1,585	2,697		157				95	639	12	1,407
	886	11,947		2,189	378	158	289	94					357	398		210
	128	1,733				18	18									171
	42	266	10			30	35			$10						
				105										44		
													173	246		59
	1,888	24,549	23	962		2,081	3,916	3	137	134		52	54	541	606	724
	2,306	158,582		464		693	1,075		1,134				124	509		463
	1,130	16,797	42	219	381	1,188	2,656	41	72							
	16,109	$324,620	$156	$9,447	$1,018	10,526	$17,566	$183	$6,482	$144		$1,661	$2,910	$6,651	$4,249	$5,701
												$176				
	1,349	$20,544		$2,074	$5,151	497	$990		$11				$355	$90		$4,601
	340	2,845		1,303												
	5	112										13	127	210		926
	701	9,887	$54	743	1,234	561	1,086		231							
	100	883				200	280									854
	1,955	18,152		7,902	1,176	989	1,574		473							
	118	1,142		95		90	100					31				710
													28	174		
	41	410		296		45	40		664			3,014	571	1,400	$75	
	1,271	20,480	240	4,211		1,462	2,946									
									455					216		
						149	497									1,913
	106	2,589				120	301					39	1,224	1,618		
	104	1,123		5,364	6,839	2,449	4,210	$129	914							
	5,768	53,810				224	574	48							30	
	112	2,227	127	112												
	11,970	$134,294	$421	$22,100	$14,400	6,786	$12,598	$177	$2,748			$3,273	$2,305	$3,708	$105	$9,004
						3,048	$5,254	$22	$3,377		$491	$2,808	$692	$1,720	$842	$5,278
	3,970	$57,234		$11,062		10	32		109							
	9	138							21					512	1,120	
	2	43		110	$561				985			120		759		1,178
	1,492	22,315		6,810		158	335									15
	11	138				21	51									
	5,484	$79,868		$17,982	$561	3,237	$5,672	$22	$4,492		$491	$2,928	$692	$2,991	$1,962	$6,471

Exports of India Rubber Manufactures from the

	Belting Value	Hose Value	Packing Value	Thread Value	Boots Pairs	Boots Value	Shoes Pairs	Shoes Value	Canvas Shoes with Rubber Soles Pairs	Canvas Shoes with Rubber Soles Value	Soles and Heels Value	Waterproofed Auto Cloth Value	Waterproofed Clothing Value
AFRICA													
British West Africa									24	$38			
British South Africa	$19,330	$14,733	$3,923	$349	169	$726	362	$426	1,281	1,127	$3,209	$2,014	$1,886
British East Africa												253	
Canary Islands												330	
Egypt		12							25	11			
Algeria and Tunis													
Other French Africa													
Liberia													144
Morocco		741											
Portuguese East Africa	243	236	955						226	188			
Other Portuguese Africa													
Spanish Africa									100	36		165	
TOTALS, AFRICA	$19,573	$15,722	$4,878	$349	169	$726	362	$426	1,656	$1,400	$3,209	$2,762	$2,030
GRAND TOTALS	$212,379	$145,115	$74,379	$120,574	90,006	$286,544	340,012	$214,623	201,666	$151,891	$53,335	$78,959	$32,645

Rubber Statistics for the Dominion of Canada

Imports of Crude and Manufactured Rubber

	August, 1924 Pounds	August, 1924 Value	Five Months Ended August, 1924 April-August Pounds	Five Months Ended August, 1924 April-August Value
UNMANUFACTURED				
Rubber, gutta percha, etc.,				
From United Kingdom	89,600	$13,037	3,024,954	$791,165
United States	1,717,888	367,233	9,075,273	2,008,516
Belgium			50,122	11,393
Ceylon				
Straits Settlements	62,022	13,659	844,544	177,190
Dutch East Indies	11,225	3,837	78,474	19,855
France				
Netherlands				
Other countries				
Totals	1,880,735	$397,766	13,073,367	$3,008,119
Rubber recovered	156,458	21,658	1,018,092	96,273
Rubber powdered and rubber or gutta percha scrap	269,239	6,115	2,156,710	72,717
Balata	384	304	1,763	1,432
Rubber substitutes	65,890	18,996	267,073	76,284
Totals	2,372,706	$444,839	16,517,005	$3,254,825
PARTLY MANUFACTURED				
Hard rubber sheets and rods	8,375	$5,552	76,196	$36,582
Hard rubber tubes		1,058		4,026
Rubber thread, not covered	5,757	6,033	28,643	30,115
Totals	14,114	$12,643	104,839	$70,723
MANUFACTURED				
Belting		$8,864		$56,825
Hose		11,531		52,761
Packing		3,319		19,348
Boots and shoes, pairs	12,983	14,536	54,763	39,418
Clothing, including waterproofed		9,761		78,665
Gloves		834		6,925
Hot water bottles		10		2,146
Tires, solid, number	232	9,071	3,828	41,738
Tires, pneumatic, number	3,346	46,395	28,540	331,780
Inner tubes, number	2,347	5,655	17,272	42,138
Elastic, round or flat		24,583		108,284
Mats and matting		628		8,633
Cement		10,376		22,168
Other rubber manufactures		128,977		705,608
Totals		$274,540		$1,536,437
Total rubber imports		$732,022		$4,861,985

Exports of Domestic and Foreign Rubber Goods

	August, 1924 Produce of Canada Value	August, 1924 Re-exports of Foreign Goods Value	Five Months Ended August, 1924 April-August Produce of Canada Value	Five Months Ended August, 1924 April-August Re-exports of Foreign Goods Value
UNMANUFACTURED				
Crude and waste rubber	$5,905		$28,379	
Totals	$5,905		$28,379	
MANUFACTURED				
Belting	$24,883		$181,133	
Canvas soles with rubber soles	248,445		764,924	
Boots and shoes	107,485		253,853	
Clothing, including waterproofed	1,904		14,911	
Hose	17,462		56,613	
Tires, casings	360,903		2,175,055	
Inner tubes	53,621		355,436	
Pneumatic				
Solid	8,791		76,914	
Vehicle				
Other rubber manufactures	22,711	$13,225	122,063	$64,542
Totals	$846,205	$13,225	$4,000,902	$64,542
Totals rubber exports	$852,110	$13,225	$4,029,281	$64,542

United States Rubber Imports by Customs Districts

Customs District	September, 1924 Pounds	September, 1924 Value	Nine Months Ended September, 1924 Pounds	Nine Months Ended September, 1924 Value
Massachusetts	2,589,543	$533,945	13,006,339	$2,929,784
New York	51,872,083	10,785,257	475,901,249	110,105,011
Philadelphia	1,423,782	286,815	3,067,462	668,260
Maryland	708,048	122,621	8,914,174	1,830,867
Los Angeles	1,321,118	234,943	7,894,492	1,746,220
San Francisco	1,705,204	359,407	5,436,613	1,300,132
Oregon	140,140	36,905	664,940	119,900
Colorado	168,000	34,085	586,638	126,888
Vermont			2,850	587
Buffalo			33,227	5,937
Chicago			80,608	18,861
San Antonio			177,783	31,734
Hawaii			70	21
Totals	59,927,918	$12,393,978	$515,766,445	$118,884,202

United States Crude and Waste Rubber Imports for 1924 (By Months)

	Plantations	Parás	Africans	Centrals	Guayule	Manicoba and Matto Grosso	Total 1924	Total 1923	Balata	Miscellaneous	Waste
January, tons	20,611	731	181	88			21,611	31,197	23	249	95
February	29,977	1,501	192	93			31,763	24,220	47	799	53
March	16,009	980	663	33	67		17,752	33,916	86	98	184
April	41,438	686	139	9	164		42,436	31,588	55	1,371	114
May	22,466	1,176	70	17	185		23,914	36,184½	55	139	104
June	17,810	737	46	115	132		18,840	32,934	15	796	10
July	16,890	1,199	170	43	167		18,469	18,609	26	1,335	50
August	18,397	1,014	567	6	92		20,076	18,674	17	248	...
September	28,362	123	263	85	167		29,000	11,611	15	557	74
October	34,073	2,172	613	157	142		37,157	19,662	93	823	48
Totals, 10 months, 1924, tons	246,033	10,319	2,904	646	1,116		261,018		432	6,415	732
Totals, 10 months, 1923, tons	244,107	9,773	3,075	493	1,079	68½		258,595½	721	6,239	3,518

Compiled from Rubber Association statistics.

United States by Countries During September, 1924 *(Continued)*

Pneumatic Casings			Solid Tires		Pneumatic Tubes				Hard Rubber Goods							
Automobile			Automobile and Motor Truck		Automobile											
Number	Value	Others Value	Value	Others Value	Number	Value	Others Value	Tire Repair Materials Value	Battery Jars and Accessories Value	Other Electrical Supplies Value	Others Value	Rubber Water Bottles and Fountain Syringes Value	Other Druggists' Rubber Sundries Value	Bathing Caps Value	Rubber Toys, Balls and Balloons Value
260	$4,122	.....	.....	$65	126	$227	.....	.....	.....	.....	.....	$450	$588	$484	.....
1,001	14,813	$61	$292	.....	1,679	3,071	.....	1,407	.....	$16	.....	.....	.....	.....	$4,511
82	886	.....	.....	.....	20	34	.....	.....	.....	.....	.....	.....	.....	.....	.....
282	3,652	.....	875	.....	286	667	.....	.....	.....	.....	.....	.....	.....	.....	.....
214	1,806	14	613	.....	269	355	$10	23	.....	.....	$12	.....	.....	.....	75
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
12	167	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	107	.....	.....	.....	.....	.....	.....	.....
14	200	15	.....	.....	28	50	.....	.....	.....	.....	45	.....	.....	.....	.....
12	289	.....	.....	.....	44	74	.....	.....	.....	.....	.....	.....	.....	.....	.....
.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	213
1,877	$25,935	$90	$1,780	$65	2,452	$4,478	$10	$1,537	.....	$16	$57	$450	$588	$484	$4,799
85,095	$1,136,684	$10,239	$184,226	$21,057	59,694	$109,632	$2,135	$49,284	$6,873	$7,598	$54,309	$20,614	$71,857	$12,622	$90,016

United Kingdom Rubber Statistics

Imports

	September, 1924		Nine Months Ended September, 1924	
UNMANUFACTURED				
Crude rubber	Pounds	Value	Pounds	Value
From—				
Straits Settlements	5,708,400	£303,050	45,032,300	£2,492,308
Federated Malay States	2,841,500	149,513	20,408,200	1,142,356
British India	325,400	17,287	6,765,900	380,635
Ceylon and Dependencies	1,450,400	79,712	14,821,700	834,529
Other Dutch Possessions in Indian Seas	133,700	7,948	2,045,900	116,911
Dutch East Indies (except other Dutch Possessions in Indian Seas)	884,800	45,212	11,334,800	628,562
Other countries in East Indies and Pacific, not elsewhere specified	105,500	5,882	597,100	32,711
Brazil	800,800	26,661	4,870,400	219,822
Peru	.....	.....	36,400	1,845
South and Central America (except Brazil and Peru)	.....	.....	157,800	7,807
West Africa:				
French West Africa	332,900	15,111	1,295,700	56,656
Gold Coast	17,700	699	147,500	6,524
Other parts of West Africa	95,800	3,980	581,800	24,276
East Africa, including Madagascar	41,800	2,044	573,200	27,962
Other countries	47,600	2,643	512,500	28,416
Totals	12,786,300	£659,742	109,181,200	£6,001,320
Waste and reclaimed rubber	302,600	2,883	3,287,800	36,624
Gutta percha and balata	592,400	73,985	6,451,500	855,788
Rubber substitutes	6,700	266	29,100	1,016
Totals	13,687,400	£736,876	118,949,600	£6,894,748
MANUFACTURED				
Boots and shoes...*doz. pairs*	14,653	£41,263	164,737	£341,123
Tires and tubes				
Pneumatic				
Outer covers	.....	227,528	.....	1,612,275
Inner tubes	.....	30,442	.....	316,487
Solid tires	.....	24,082	.....	236,104
Other rubber manufactures	.....	125,954	.....	969,316
Totals	.....	£449,269	.....	£3,475,305

Exports

UNMANUFACTURED				
Waste and reclaimed	570,700	£4,729	6,851,500	£65,009
Rubber substitutes	81,500	1,862	899,800	19,828
Totals	652,200	£6,591	7,751,300	£84,837
MANUFACTURED				
Boots and shoes...*doz. pairs*	23,935	£38,622	196,004	£304,486
Tires and tubes				
Pneumatic				
Outer covers	.....	145,978	.....	1,454,005
Inner tubes	.....	28,947	.....	288,669
Solid tires	.....	27,844	.....	261,649
Other rubber manufactures	.....	243,751	.....	2,197,701
Totals	.....	£485,142	.....	£4,506,510

Exports—Colonial and Foreign

	September, 1924		Nine Months Ended September, 1924	
UNMANUFACTURED				
Crude rubber	Pounds	Value	Pounds	Value
To—				
Russia	6,600	£399	901,900	£50,760
Sweden, Norway, and Denmark	57,600	3,334	2,017,200	111,220
Germany	1,205,600	63,004	12,483,200	700,473
Belgium	203,800	11,596	3,085,400	171,511
France	943,300	53,509	25,333,900	1,333,749
Spain	56,800	3,257	669,300	35,931
Italy	393,400	21,797	7,099,700	367,545
Austria	700	65	245,100	13,127
Hungary	600	40	46,200	2,517
Other European countries	71,600	4,652	1,844,300	103,905
United States	10,512,600	607,581	53,329,900	3,008,334
Canada	200	17	4,505,200	269,011
Other countries	81,200	5,439	721,400	40,529
Totals	13,534,000	£774,690	112,282,700	£6,208,612
Waste and reclaimed rubber	5,800	141	50,600	1,027
Gutta percha and balata	73,500	9,740	595,100	60,289
Rubber substitutes	.....	.....	1,500	33
Totals	13,613,300	£784,571	112,929,900	£6,269,961
MANUFACTURED				
Boots and shoes...*doz. pairs*	181	£594	3,039	£6,026
Tires and tubes				
Pneumatic				
Outer covers	.....	33,893	.....	345,706
Inner tubes	.....	3,468	.....	28,542
Solid tires	.....	1,545	.....	10,020
Other rubber manufactures	.....	5,855	.....	48,105
Totals	.....	£45,355	.....	£447,399

Landings Deliveries and Stocks in London and Liverpool as Returned by the Warehouses and Wharves During September

	Landed for Sept.	Delivered for Sept.	Stocks, September 30		
LONDON:	Tons	Tons	1924 Tons	1923 Tons	1922 Tons
Plantation	4,426	10,099	43,838	54,159	70,853
Other grades	....	.....	109	75	124
LIVERPOOL:					
Plantation	†169	†606	†3,569	†5,893	†7,522
Pará and Peruvian	88	192	280	69	207
Other grades	....	10	198	212	418
Total tons, London and Liverpool	4,683	10,907	47,994	60,408	79,124

† Official returns from six recognized public warehouses.

THE UNITED STATES IMPORTED DURING AUGUST AND SEPTEMBER of the present year crude rubber to the approximate amount of 48,770,000 pounds and 60,034,000 pounds respectively, as compared with 25,903,000 pounds in September, 1923.

Crude Rubber Arrivals at New York as Reported by Importers

Parás and Caucho

	Fine Cases	Medium Cases	Coarse Cases	Caucho Cases	Cametá Cases
OCTOBER 25. By "Francis," Pará and Manáos.					
H. A. Astlett & Co.	164	....	27	....	....
H. A. Astlett & Co.	‡45	....	‡145	‡146	....
General Rubber Co.	500	32	147	33	‡39
L. Littlejohn & Co., Inc.	1,149	50	145	332	....
Meyer & Brown, Inc.	†55	....	....	....	....
Poel & Kelly, Inc.	479	....	92	98	....
NOVEMBER 19. By "Hubert," Brazil.					
General Rubber Co.	425	17	209	‡377	11

‡Includes 8 cases of mixed grades. ‡Includes 25 cases of mixed grades.
† Fine and medium. ‡ Washed and dried in Brazil.

Plantations

OCTOBER 16. By "Nile," Colombo.
H. A. Astlett & Co. 112 cases
Baird Rubber & Trading Co., Inc. 273 cases
OCTOBER 17. By "Kambangan," Far East.
H. A. Astlett & Co. 54 cases
Baird Rubber & Trading Co., Inc. 582 cases
General Rubber Co. 2,574 cases
Hood Rubber Co. *399 cases
L. Littlejohn & Co., Inc. 4,342 cases
H. Muehlstein & Co., Inc. 780 cases
Poel & Kelly, Inc. 2,353 cases
Vernon Metal & Produce Co., Inc. 54 cases
Chas. T. Wilson Co., Inc. 940 cases
OCTOBER 17. By "Simaloer," Far East.
H. A. Astlett & Co. 136 cases
H. A. Astlett & Co. *139 cases
Baird Rubber & Trading Co., Inc. 195 sases
General Rubber Co. 60 cases
L. Littlejohn & Co., Inc. 1,853 cases
Poel & Kelly, Inc. 2,757 cases
Fred Stern & Co., Inc. 199 cases
Vernon Metal & Produce Co., Inc. 104 cases
Chas. T. Wilson Co., Inc. 137 cases
OCTOBER 20. By "Anchoria," London.
General Rubber Co. 500 cases
L. Littlejohn & Co., Inc. 3,909 cases
Meyer & Brown, Inc. 702 cases
Poel & Kelly, Inc. 1,188 cases
OCTOBER 22. By "Robert Dollar," Far East.
H. A. Astlett & Co. 1,066 cases
Baird Rubber & Trading Co., Inc. 100 cases
Hood Rubber Co. *434 cases
L. Littlejohn & Co., Inc. 2,521 cases
Meyer & Brown, Inc. 350 cases
H. Muehlstein & Co., Inc. 1,200 cases
Poel & Kelly, Inc. 936 cases
Fred Stern & Co., Inc. 265 cases
Vernon Metal & Produce Co., Inc. 351 cases
Chas. T. Wilson Co., Inc. 807 cases
OCTOBER 22. By "Sweden Maru," Singapore.
Chas. T. Wilson Co., Inc. 106 cases
OCTOBER 23. By "Mesaba," Far East.
Baird Rubber & Trading Co., Inc. 948 cases
J. T. Johnstone & Co., Inc. 1,410 cases
L. Littlejohn & Co., Inc. 628 cases
Meyer & Brown, Inc. 535 cases
Fred Stern & Co., Inc. 690 cases
Chas. T. Wilson Co., Inc. 957 cases
OCTOBER 23. By "President Monroe," Far East.
H. A. Astlett & Co. 294 cases
Baird Rubber & Trading Co., Inc. 509 cases
General Rubber Co. 280 cases
Hood Rubber Co. *97 cases
J. T. Johnstone & Co., Inc. 306 cases
L. Littlejohn & Co., Inc. 3,923 cases
Meyer & Brown, Inc. 1,274 cases
H. Muehlstein & Co., Inc. 850 cases
Poel & Kelly, Inc. 586 cases
Fred Stern & Co., Inc. 128 cases
Vernon Metal & Produce Co., Inc. 224 cases
Chas. T. Wilson Co., Inc. 1,085 cases
OCTOBER 23. By Steel Voyages," Far East.
L. Littlejohn & Co., Inc. 413 cases
OCTOBER 24. By "Mississippi," London.
Vernon Metal & Produce Co., Inc. *118 cases
OCTOBER 25. By "Gaelic Prince," Far East.
H. A. Astlett & Co. 1,028 cases
H. A. Astlett & Co. *46 cases

*Arrived at Boston.
‡Penang scrap.

Baird Rubber & Trading Co., Inc. 4,011 cases
General Rubber Co. 1,536 cases
Hood Rubber Co. *692 cases
J. T. Johnstone & Co., Inc. 443 cases
L. Littlejohn & Co., Inc. 11,490 cases
Meyer & Brown, Inc. 1,862 cases
Poel & Kelly, Inc. 3,577 cases
Fred Stern & Co., Inc. 1,087 cases
Vernon Metal & Produce Co., Inc. 125 cases
Chas. T. Wilson Co., Inc. 2,275 cases
OCTOBER 25. By "Patrick Henry," Far East.
H. A. Astlett & Co. 137 cases
Baird Rubber & Trading Co., Inc. 287 cases
L. Littlejohn & Co., Inc. 838 cases
Meyer & Brown, Inc. 205 cases
Poel & Kelly, Inc. 308 cases
OCTOBER 25. By "Verbania," London.
H. A. Astlett & Co. 118 cases
L. Littlejohn & Co., Inc. 10,056 cases
Vernon Metal & Produce Co., Inc. 138 cases
Chas. T. Wilson Co., Inc. 1,090 cases
OCTOBER 27. By "Cedric," London.
Baird Rubber & Trading Co., Inc. 331 cases
Meyer & Brown, Inc. 423 cases
OCTOBER 27. By "Laconia," London.
Paul Bertuch & Co. 222 cases
Paul Bertuch & Co. 1 bag
L. Littlejohn & Co., Inc. 167 cases
OCTOBER 27. By "Minnetonka," London.
Paul Bertuch & Co. 72 cases
Chas. T. Wilson Co., Inc. 250 cases
Paul Bertuch & Co. 2 bags
General Rubber Co. 51 cases
J. T. Johnstone & Co., Inc. 625 cases
L. Littlejohn & Co., Inc. 4,818 cases
Meyer & Brown, Inc. 2,670 cases
H. Muehlstein & Co., Inc. 1,250 cases
Chas. T. Wilson Co., Inc. 153 cases
OCTOBER 27. By "Nanering," Far East.
L. Littlejohn & Co., Inc. 1,580 cases
Meyer & Brown, Inc. 840 cases
H. Muehlstein & Co., Inc. 1,800 cases
Poel & Kelly, Inc. 852 cases
Vernon Metal & Produce Co., Inc. 112 cases
OCTOBER 29. By "American Trader," London.
L. Littlejohn & Co., Inc. 303 cases
Meyer & Brown, Inc. 1,002 cases
OCTOBER 29. By "West Canon," Far East.
H. A. Astlett & Co. 230 cases
General Rubber Co. 3,992 cases
L. Littlejohn & Co., Inc. 1,798 cases
J. T. Johnstone & Co., Inc. 223 cases
Meyer & Brown, Inc. 605 cases
H. Muehlstein & Co., Inc. 1,830 cases
Chas. T. Wilson Co., Inc. 616 cases
OCTOBER 30. By "Bellerophon," Far East.
H. A. Astlett & Co. 1,011 cases
H. A. Astlett & Co. *456 cases
Baird Rubber & Trading Co., Inc. 1,951 cases
General Rubber Co. 745 cases
Hood Rubber Co. *178 cases
J. T. Johnstone & Co., Inc. 474 cases
L. Littlejohn & Co., Inc. 13,079 cases
Meyer & Brown, Inc. 5,451 cases
H. Muehlstein & Co., Inc. 2,340 cases
H. Muehlstein & Co., Inc. *50 cases
Poel & Kelly, Inc. 5,786 cases
Poel & Kelly, Inc. *120 cases
Fred Stern & Co., Inc. 1,699 cases
Vernon Metal & Produce Co., Inc. 400 cases
Chas. T. Wilson Co., Inc. 2,665 cases
OCTOBER 31. By "Kendal Castle," Far East.
H. A. Astlett & Co. 65 cases
Baird Rubber & Trading Co., Inc. 1,577 cases
General Rubber Co. 2,991 cases
Hood Rubber Co. 67 cases
Hood Rubber Co. *373 cases
J. T. Johnstone & Co., Inc. 479 cases
L. Littlejohn & Co., Inc. 6,537 cases
Meyer & Brown, Inc. 1,639 cases
H. Muehlstein & Co., Inc. 1,860 cases
H. Muehlstein & Co., Inc. *50 cases
Poel & Kelly, Inc. 2,557 cases
Vernon Metal & Produce Co., Inc. 350 cases
Chas. T. Wilson Co., Inc. 1,504 cases
NOVEMBER 1. By "Veendam," Rotterdam.
H. Muehlstein & Co., Inc. 34 cases
NOVEMBER 4. By "Samaria," Europe.
L. Littlejohn & Co., Inc. 55 cases
NOVEMBER 4. By "Vardulia," London.
L. Littlejohn & Co., Inc. 1,100 cases
Meyer & Brown, Inc. 1,491 cases
H. Muehlstein & Co., Inc. 1,800 cases
Poel & Kelly, Inc. 1,192 cases
NOVEMBER 5. By "American Merchant," London.
Fisk Rubber Co. 2,694 cases
NOVEMBER 5. By "Baltic," Singapore.
J. T. Johnstone & Co., Inc. 148 cases
Chas. T. Wilson Co., Inc. 37 cases
NOVEMBER 5. By "City of Chester," Far East.
H. A. Astlett & Co. 1,494 cases
H. A. Astlett & Co. 472 cases
Baird Rubber & Trading Co., Inc. 2,682 cases
General Rubber Co. 69 cases
Hood Rubber Co. *250 cases
J. T. Johnstone & Co., Inc. 800 cases
L. Littlejohn & Co., Inc. 11,549 cases
Meyer & Brown, Inc. 4,008 cases
H. Muehlstein & Co., Inc. 450 cases
H. Muehlstein & Co., Inc. 300 cases
Poel & Kelly, Inc. 8,320 cases
Fred Stern & Co., Inc. 475 cases
Chas. T. Wilson Co., Inc. 450 cases
NOVEMBER 6. By "Chattanooga City," Far East.
H. A. Astlett & Co. 1,255 cases
General Rubber Co. 2,252 cases
Hood Rubber Co. *79 cases
J. T. Johnstone & Co., Inc. 345 cases
L. Littlejohn & Co., Inc. 1,545 cases
Meyer & Brown, Inc. 307 cases
H. Muehlstein & Co., Inc. 250 cases
H. Muehlstein & Co., Inc. *500 cases
Fred Stern & Co., Inc. 50 cases
Chas. T. Wilson Co., Inc. 814 cases
NOVEMBER 6. By "President Harrison," Far East.
Baird Rubber & Trading Co., Inc. 600 cases
Hood Rubber Co. *125 cases
L. Littlejohn & Co., Inc. 2,834 cases
Meyer & Brown, Inc. 350 cases
Poel & Kelly, Inc. 320 cases
Fred Stern & Co., Inc. 37 cases
Chas. T. Wilson Co., Inc. 690 cases
NOVEMBER 8. By "New Amsterdam," Europe.
H. Muehlstein & Co., Inc. 50 cases
Chas. T. Wilson Co., Inc. 209 cases
NOVEMBER 9. By "Menominee," London.
Paul Bertuch & Co. 108 cases
Paul Bertuch & Co. 1 bag
Fisk Rubber Co. 3,407 cases
Hood Rubber Co. *2,321 cases
J. T. Johnstone & Co., Inc. 849 cases
L. Littlejohn & Co., Inc. 1,543 cases
Meyer & Brown, Inc. 2,058 cases
Chas. T. Wilson Co., Inc. 143 cases
NOVEMBER 9. By "Virgilia," Europe.
L. Littlejohn & Co., Inc. 567 cases
NOVEMBER 9. By "Winifridian," London.
Hood Rubber Co. 232 cases
NOVEMBER 10. By "Minnewaska," London.
L. Littlejohn & Co., Inc. 957 cases
Meyer & Brown, Inc. 125 cases
NOVEMBER 11. By "Blyndendyck," Rotterdam.
H. Muehlstein & Co., Inc. *125 cases
NOVEMBER 12. By "Albania," Far East.
Poel & Kelly, Inc. 1,975 cases
NOVEMBER 12. By "London Exchange," Singapore.
L. Littlejohn & Co., Inc. 532 cases
Chas. T. Wilson Co., Inc. 421 cases
NOVEMBER 13. By "City of Auckland, Colombo.
Baird Rubber & Trading Co., Inc. 593 cases
L. Littlejohn & Co., Inc. 1,097 cases
Poel & Kelly, Inc. 42 cases
Fred Stern & Co., Inc. 21 cases
NOVEMBER 13. By "Wray Castle," Far East.
H. A. Astlett & Co. 312 cases
H. A. Astlett & Co. *233 cases
Baird Rubber & Trading Co., Inc. 1,270 cases
General Rubber Co. 3,361 cases
Hood Rubber Co. 64 cases
Hood Rubber Co. *203 cases
J. T. Johnstone & Co., Inc. 230 cases
L. Littlejohn & Co., Inc. 7,602 cases
Meyer & Brown, Inc. 3,082 cases
H. Muehlstein & Co., Inc. 2,400 cases
Poel & Kelly, Inc. 2,085 cases

NOVEMBER 17. By "Romeo," Far East.
Baird Rubber & Trading Co., Inc.... 2,061 cases
General Rubber Co..... 1,574 cases
Hood Rubber Co..... *274 cases
J. T. Johnstone & Co., Inc..... 2,883 cases
Meyer & Brown, Inc..... 1,202 cases
H. Muhlstein & Co., Inc..... 3,168 cases
Poel & Kelly, Inc..... 6,754 cases
Poel & Kelly, Inc..... *330 cases
Fred Stern & Co., Inc..... 443 cases
Vernon Metal & Produce Co., Inc... 466 cases
NOVEMBER 17. By "Aymeric," Far East.
General Rubber Co..... 500 cases
Hood Rubber Co..... *117 cases
Poel & Kelly, Inc..... 505 cases
Vernon Metal & Produce Co., Inc.... 280 cases
NOVEMBER 17. By "Perseus," Far East.
Baird Rubber & Trading Co., Inc.... 1,128 cases
General Rubber Co..... 328 cases
J. T. Johnstone & Co., Inc..... 761 cases
Meyer & Brown, Inc..... 5,057 cases
H. Muehlstein & Co., Inc..... 2,660 cases
Poel & Kelly, Inc..... 2,457 cases
Fred Stern & Co., Inc..... 1,285 cases
NOVEMBER 17. "Veendyk," Far East.
Baird Rubber & Trading Co., Inc.... 752 cases
Baird Rubber & Trading Co., Inc.... †*113 cases
General Rubber Co..... 3,336 cases
J. T. Johnstone & Co., Inc..... 703 cases
Meyer & Brown, Inc..... 708 cases
Poel & Kelly, Inc..... 1,711 cases
Fred Stern & Co., Inc..... 435 cases
Vernon Metal & Produce Co., Inc.... 75 cases
NOVEMBER 19. By "American Farmer," London.
General Rubber Co..... 1,655 cases

Africans

OCTOBER 18. By "Titania," Hamburg.
Poel & Kelly, Inc..... 1,707 bags
OCTOBER 21. By "Aurania," Liverpool.
L. Littlejohn & Co., Inc..... 153 cases
Poel & Kelly, Inc..... 4 casks
OCTOBER 22. By "Sweden Maru," Hamburg.
Fred Stern & Co., Inc..... 413 cases
OCTOBER 24. By "Sarcoxie," Europe.
L. Littlejohn & Co., Inc..... 1,431 cases
Fred Stern & Co., Inc..... 324 cases
OCTOBER 25. By "Breedyk," Amsterdam.
Hood Rubber Co..... *15 cases
OCTOBER 28. By "Cedric," Liverpool.
Fred Stern & Co., Inc..... 19 casks
OCTOBER 30. By "Chicago," Bordeaux.
Fred Stern & Co., Inc..... 321 cases
NOVEMBER 4. By "Samaria," Europe.
L. Littlejohn & Co., Inc..... 97 cases
Poel & Kelly, Inc..... 71 packages
NOVEMBER 10. By "Olen," Europe.
L. Littlejohn & Co., Inc..... 505 bags
Fred Stern & Co., Inc..... 505 cases
NOVEMBER 10. By "Scythia," Europe.
L. Littlejohn & Co., Inc..... 10 cases
NOVEMBER 11. By "Blyndendyck," Amsterdam.
Hood Rubber Co..... *209 cases

Guayule

OCTOBER 30. By "Mexico," Mexico.
Continental Rubber Co..... 560 cases
NOVEMBER 10. By "Agwistar," Mexico.
Continental Rubber Co..... 1,120 cases
NOVEMBER 10. By "Esperanza," Mexico.
Continental Rubber Co..... 1,120 cases

Balata

OCTOBER 17. By "Mayaro," Ciudad Bolivar.
Ultramares Corp..... 90 cases
OCTOBER 25. By "Frances," Manáos.
Paul Bertuch & Co..... 4 cases
OCTOBER 27. By "Surinam," French Guiana.
Middleton & Co., Ltd..... 116 bales
OCTOBER 27. By "Prins der Nederlanden," Dutch Guiana.
Middleton & Co., Ltd..... 187 bales
NOVEMBER 9. "Matura," Ciudad Bolivar.
Ultramares Corp..... 95 cases

Gutta Siak

OCTOBER 30. By "Bellerophon," Singapore.
H. A. Astlett & Co..... *80 cases

Manicobas

NOVEMBER 5. By "Baltic," Liverpool.
H. A. Astlett & Co..... 5 cases

Rubber Latex

OCTOBER 16. By "Nile," Far East.
General Rubber Co..... 717,584 lbs.
OCTOBER 29. By "West Canon," Far East.
General Rubber Co..... 284,217 lbs.
OCTOBER 31. By "Kendal Castle," Far East.
General Rubber Co..... 98,870 lbs.
NOVEMBER 6. By "Chattanooga City," Far East.
General Rubber Co..... 208,550 lbs.
NOVEMBER 13. By "Wray Castle," Far East.
General Rubber Co..... 112,285 lbs.

Official India Rubber Statistics for the United States

Imports of Crude and Manufactured Rubber

	September, 1924		Nine Months Ended September, 1924	
	Pounds	Value	Pounds	Value
UNMANUFACTURED—*free*				
Crude rubber				
From France	174,477	$31,668	978,067	$213,593
Netherlands	1,628,528	431,047	3,568,761	889,380
Portugal	.....	.....	1,854	180
United Kingdom	8,916,980	2,245,144	51,484,069	12,722,659
Canada	.....	.....	120,632	26,841
Central America	409	57	22,393	2,791
Mexico	.....	.....	625	170
Brazil	1,741,520	286,923	19,172,389	2,170,570
Peru	.....	.....	812,601	146,660
Other So. America	78,752	19,164	1,399,623	257,299
British E. Indies	36,569,925	7,064,139	341,257,631	78,018,669
Dutch E Indies	10,485,927	2,239,886	91,402,554	22,329,045
Other Countries	331,400	75,950	4,255,847	1,165,130
Totals	59,927,918	$12,393,978	514,477,046	$118,942,987
Balata	45,684	29,979	582,858	313,031
Jelutong or Pontianak	1,565,759	115,079	11,979,894	1,074,579
Gutta percha	479,788	82,014	2,670,775	400,239
Guayule	368,000	64,550	2,606,183	391,244
Rubber scrap	842,563	23,450	7,239,049	294,925
Totals	63,229,712	$12,079,050	539,555,805	$121,417,065
Chicle ..... *dutiable*	424,000	212,848	5,129,793	2,626,160
MANUFACTURED—*dutiable*				
Rubber belting	16,058	11,732	426,769	293,153
Other manufactures of substitutes for rubber	.....	88,291	.....	1,764,157
Total	16,058	$100,023	426,769	$2,057,310

Exports of Foreign Merchandise

UNMANUFACTURED				
Crude rubber	1,395,580	$347,807	16,086,792	$3,803,133
Balata	77,353	48,923	348,697	205,977
Jelutong or Pontianak	.....	.....	.....	.....
Gutta percha and rubber substitutes and scrap	103	24	53,072	2,079
Totals	1,473,036	$396,754	16,488,561	$4,011,189
Chicle	.....	.....	68,974	26,409
MANUFACTURED				
Gutta percha and india rubber	1,398	$1,521	46,374	$23,018
Totals	1,398	$1,521	46,374	$23,018

Exports of Domestic Merchandise

	September, 1924		Nine Months, Ended September, 1924	
	Pounds	Value	Pounds	Value
MANUFACTURED				
India rubber				
Reclaimed	269,409	$27,614	3,901,000	$375,096
Scrap and old	1,311,147	49,235	14,845,308	570,162
Footwear				
Boots ..... *pairs*	90,006	280,544	415,736	1,040,792
Shoes ..... *pairs*	340,012	214,623	1,278,971	1,065,524
Canvas shoes with rubber soles *pairs*	201,666	151,891	2,766,272	2,166,240
Druggists' rubber sundries.				
Water bottles and fountain syringes ..... *number*	30,973	20,614	180,209	139,851
Other druggists' rubber sundries	59,314	71,857	517,413	614,909
Bathing caps *number*	4,454	12,622	137,900	259,521
Hard rubber goods				
Battery jars and accessories	22,252	6,873	315,824	90,522
Other electrical supplies	12,665	7,598	96,011	59,992
Other hard rubber goods	44,136	54,309	314,299	382,523
Tires				
Pneumatic casings				
For automobiles ..... *number*	85,095	1,136,684	912,263	11,298,634
Others .... *number*	4,608	10,239	37,096	145,833
Pneumatic tubes				
For automobiles ..... *number*	59,694	109,632	829,161	1,533,407
Others ....*number*	2,008	2,135	34,839	31,436
Solid tires				
For automobiles and motor trucks *number*	7,311	184,226	81,004	2,115,559
Others ..... *number*	85,950	21,057	975,621	242,171
Tire repair materials	130,491	49,284	990,164	389,023
Belting	377,344	212,379	2,805,107	1,654,931
Hose	362,144	145,115	3,486,233	1,371,157
Packing	163,693	74,379	1,455,780	633,386
Soles and heels	142,318	53,335	1,805,528	590,939
Thread	107,269	120,574	859,051	927,983
Other rubber manufactures	301,812	185,606	3,292,248	1,871,659
Totals	.....	$3,202,425	.....	$29,571,250

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